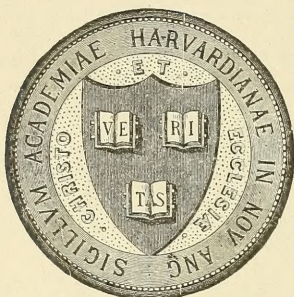


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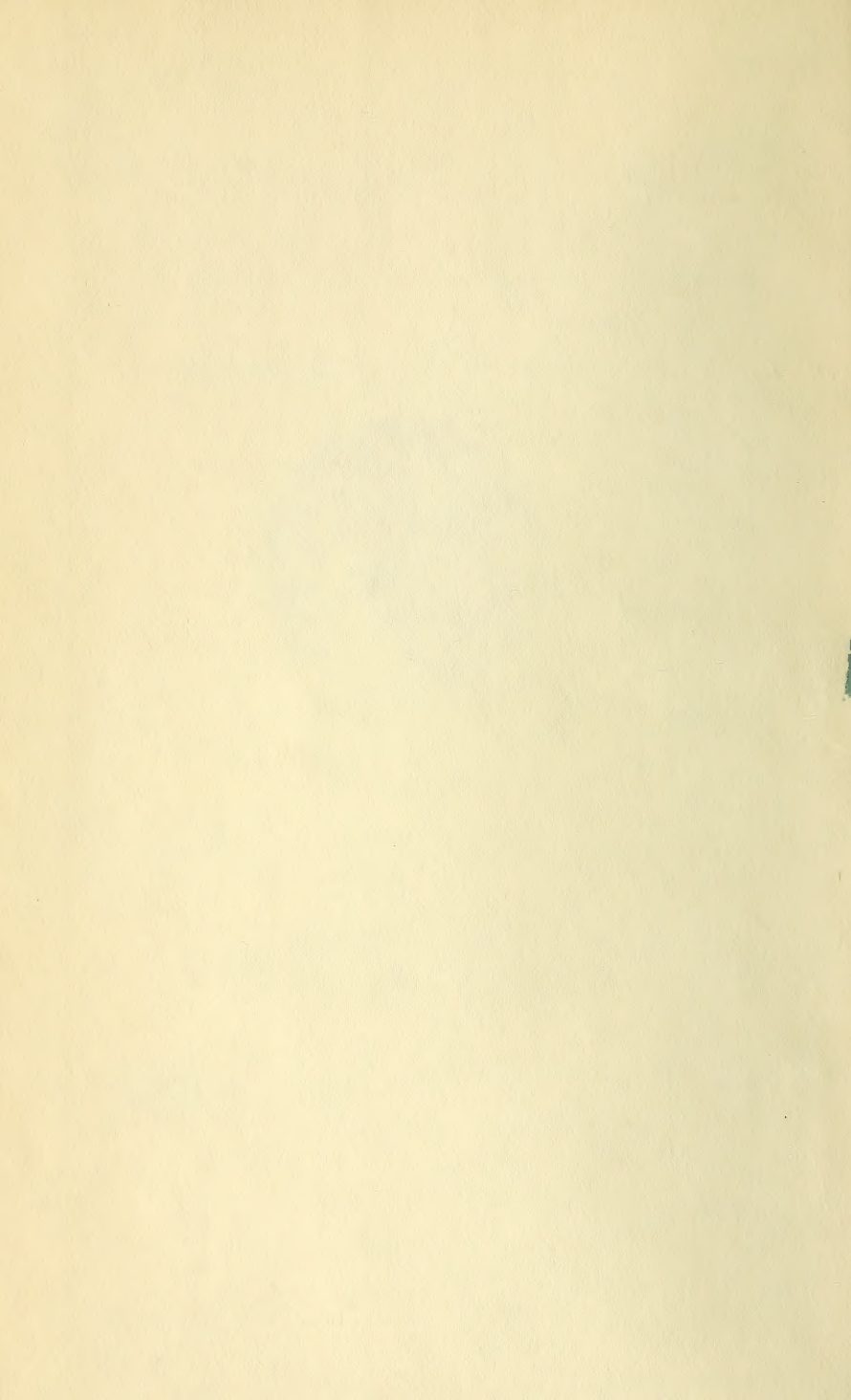
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ERRATA.

- Page 2, line 20, between "veins" and "totally," insert "almost perfectly parallel,"
- " 31, " 31, for "fuciformis" read "ruficornis." [sixth.]
- " 59, " 8, " "the," " "thin"
- " 67, " 4, " "Dallymount," " "Dollymount."
- " " 33, " "Armamoe," " "Annamoe."
- " 68, " 24, " "DESINE," " "DEIONE."
- " " 37, " "Oaklands," " "Oatlands."
- " 83, " 15, " "dark" " "Clark."
- " 216, " 22, " "pinicolana," " "bimaculana."
- " 224, " 30, invert the ♂ and ♀ signs; and in last line, dele ♀.
- " 225, line 18, for the first ♀, read ♂; and in line 29, dele ♀.
- " 231, " 16, for "Polistichus," read "Polystichus."
- " " 20, " "margipellens," " "margipallens."
- " 256, " 7, " "BIPUSTULATUS," " "BIPUSTULATA."
- " 268, " 10, instead of "last joint of labial palpi broadly securiform" read "last [joint of maxillary palpi broadly securiform."

Entomologist's Monthly Magazine

VOLUME VI.

DESCRIPTION OF A NEW SPECIES OF HEMIPTERA (*NYSIUS SCOTTI*) OCCURRING IN BRITAIN.

BY EDWARD SAUNDERS, F.L.S.

NYSIUS SCOTTI, n. s.

Pale ochreous-brown. *Head* with a fuscous spot on each side on the inner margin of the eye, and extending to the base. *Antennæ*: 1st joint with a narrow brown ring near its middle; 2nd joint at its apex, and 4th joint slightly, darker than the rest. *Thorax* very largely and deeply punctured, with a raised pale central keel; posterior angles produced and rounded, flavous, with a brown spot above and below them. *Scutellum* fuscous near its base, deeply and largely punctured, with a strongly marked flavous central keel. *Clavus* and *corium* covered with short, fine, adpressed golden hairs; their junction with the membrane narrowly fuscous; apex of corium with a small brown spot. *Membrane* purely transparent. Beneath: the first abdominal segment black in the middle; 2nd segment also black in the middle, but with two spots of the ground-colour on each side; 3rd with two brown stripes on each side; 4th and 5th ochreous. *Thighs* with round brown spots: intermediate and posterior tibiæ slightly fuscous at the apex: tarsi with the end of the first joint, and the two apical ones wholly, fuscous. Length $2\frac{1}{4}$ lines.

I took three examples of this very distinct species by sweeping heather on Reigate Heath, in August of last year. Of the continental species it appears nearest allied to *N. senecionis*, from which it may be separated by the narrower membrane, the differently coloured antennæ, and other structural characters. I have named it after Mr. J. Scott, who has so long devoted himself to the British insects of this group, and to whom I am greatly indebted for much valuable information and assistance.

Hillfield, Reigate: 8th May, 1869.

TWO NEW SPECIES OF DIPTERA (*SCATOPSE PLATYSCELIS* AND *THRIPTICUS BELLUS*, LOEW) INHABITING ENGLAND.

BY G. H. VERRALL.

The above two species having just been described by Loew, in his Supplement to Meigen, from a specimen of each taken by me in England, I think a few notes on them may have some interest.

1. *SCATOPSE PLATYSCELIS* is described as "a trifle larger than *S. bifilata*, Hal., consequently one of the largest species of this genus, and easily recognised by its affinity to the much smaller *S. clavipes*, Lw. It is shining black, with only the last segment of the abdomen dull; hind tibiæ flat, exceedingly enlarged toward the tip; halteres blackish." I captured one specimen near Lewes in 1867, crawling on a bare piece of ground on a steep bank under bushes.

2. The other species belongs to the *Dolichopidæ*, and is described by Loew as "*THRIPTICUS BELLUS*, ♀. Front and upper half of the face bluish-green, lower half more steel-blue; antennæ and palpi black; cilia of lower orbit setiform, yellowish-white; vertex with tawny bristles; thorax shining violet with yellowish hairs, which are numerous and short on the anterior part, scanty, long, and setiform on the posterior; scutellum steel-blue with two yellow bristles; abdomen shining bluish-green, without bristles, but with short yellowish-white hairs; coxæ bluish-green, front pair with short pale yellowish hairs, trochanters yellow, front pair partly brown; femora shining blackish-brown, the base being pale yellowish to a small extent; halteres whitish; tegulæ (alulæ) with white cilia; wings limpid, hardly greyish, with the veins brownish-black, third and fourth longitudinal veins totally obliterated." This is one of the most brilliant species of the whole of this brightly-coloured family, though it is one of the smallest. I have taken it between Kew and Richmond, but it is most difficult to capture from its smallness and activity. The genus *Thripticus* was only erected in 1864, in the *Stettiner Ent. Zeit.*, by Gerstäcker, from a single male specimen caught near Berlin.

Denmark Hill, London, S.: May, 1869.

ADDITIONS, &c., TO THE LIST OF BRITISH COLEOPTERA, WITH DESCRIPTION OF A NEW SPECIES OF *OCHTHEBIUS*.

BY E. C. RYE.

Having recently communicated certain of our *Brachelytra*, concerning which I entertained doubts, to M. Albert Fauvel of Caen, who is making an especial study of that group, and who has courteously given me the benefit of his opinion upon my difficulties, I am enabled to publish a few remarks tending, as I hope, towards that reconciliation of British and Continental species which is so much needed by us.

Oxypoda exigua, of my collection at least, is, as I had anticipated, *O. investigatorum*, Kraatz, Berl. Ent. Zeit., 1864, p. 130. I have not

seen the true *exigua*, which is stated to resemble *Homalota pygmæa*, and to have the apex of the abdomen almost entirely unpunctured and shining.

Oxypoda glabriventris, mihi (Ent. Mon. Mag., 1st Feb., 1865), is the *Calodera* (*Ilyobates*) *Bonnairei* of Fauvel (Bull. Soc. Normand., ix, 1865, p. 287). The generic diagnosis of *Ilyobates* appears to differ from that of *Oxypoda* solely as follows (the ligula, palpi, and tarsal formula being in each identical):—*ILYOBATES*, "*maxillæ mala interiore intus summo apice spinulis 12 longioribus ciliata*;" *OXYPODA*, "*maxillæ mala interiore intus apice spinulis ciliata*:"—the latter of which propositions would logically include the former. Not feeling inclined to destroy my solitary example by dissection, I referred it to the latter genus, on account of its great structural resemblance to *O. lucens* and certain other of the small yellow species, and also on account of not observing in it the characteristic coarse punctuation of *Ilyobates*.

Oxypoda rufula, Wat. Cat., appears to be identical with *O. riparia*, Fairm., Soc. Ent. de Fr., 1859, 38.

Oxypoda Waterhousei, mihi (*nigrofusca*, Waterh., *nec* Steph.), according to M. Fauvel, is *O. amæna*, Fairm., Faune Ent. Fr., 436.

Oxypoda annularis, Wat. Cat., appears to be *pallidula*, Sahlb.

Oxypoda misella, Waterh. (*nec* Kraatz), according to M. Fauvel, who has examined one of my specimens from Shirley, on which the species was introduced as British, is *O. ferruginea*, Er. The latter has hitherto been considered by us as synonymical with *O. brachyptera*, Steph.; but the long antennæ of that insect render such a conjunction impossible.

Oxypoda nigrina and *aterrima* of Waterhouse are, as already recorded, respectively to be referred to *O. sericea*, Heer, and *O. incrasata*, Muls. In the last edition of de Marseul's Catalogue, *O. aterrima* is, however, reinstated, and *O. nigrina* is separated from *O. sericea* by 14 species,—*O. exigua*, moreover, as has been before observed, being given as a synonym of the latter.

Bryoporus Hardyi, a good species, closely allied to *Bolitobius pygmæus*, is, according to M. Fauvel, who has seen other examples from the Pyrenees, to be referred to *Mycetoporus*.

Tachyporus scitulus of our collections is *T. pusillus*, dark var. True *scitulus* is more convex, deeper black, and with more widely punctured elytra.

Philonthus temporalis, judging from a type kindly communicated to me by M. Fauvel, has certainly not yet been correctly recorded as British.

Lathrobium Jansonii, Crotch, according to M. Fauvel, who has seen the original type, is most decidedly only *L. pallidum* of a rather darker colour than usual; variations in that respect being found on the continent. M. Fauvel does not, however, make any remark as to the discrepancy in the length of the elytra.

Lithocharis ruficollis, Crotch Cat. (*tricolor*, Marsh., Steph.), is *L. vicina*, Brisout, 1859, according to M. Fauvel.

Stenus annulatus, Crotch, is referred to *S. aceris*, Boisd. et Lac., by M. Fauvel, who states that species to be erroneously considered as identical with *impressus*, Germ. (*annulipes*, Heer). They are given as distinct by de Marseul (1866). M. Fauvel states that our *S. impressus* is his *pyrenæus*, M.S.

Homalium crassicorne, Matthews (of which the unique type has been most kindly lent to me by that gentleman), is, in my opinion, certainly a depauperised immature example of the rare *O. salicis*. In this view I am corroborated by M. Fauvel.

Homalium brevicorne, Matthews, *nec* Er., is *vile* var., according to M. Fauvel.

HOMALIUM GRACILICORNE, Fairm., Faune Ent. Fr., 642. I have long had a single, highly-coloured (possibly immature) example of this species set aside as new to our lists; and I now possess typical specimens given me by Dr. Power, who has recently taken several. It is closely allied to *vile*. M. Fauvel has corroborated this species for me.

OCHTHEBIUS POWERI, *n. sp.*

Elongato-ovatus, leviter convexus, fere opacus, obscure æneo-piceus, pedibus fuscis, geniculis tarsis palpisque nigrescentibus; prothorace subtransverso, antice valde dilatato, angulis anticis prominentibus, grosse creberrimeque punctato, canalicula mediana, foveolis quatuor discalibus (quarum duo basales, majores, insecto à posteriori viso, Trogophlæorum thoracis signaturam simulant), sulcisque lateralibus (irregularibus, antice profundius impressis foveolasque discales anticæ invadentibus) insculpto; elytris nitidulis, setis brevissimis, albidis, sat evidenter striatis instructis, creberrime fortiterque punctato-striatis, punctis primo visû fere transversim confluentibus.

Long. corp. vix $\frac{3}{4}$ lin. (Angl.).

I am unable to refer this well-marked little species satisfactorily to any published description; and M. C. Brisout de Barneville has returned it as utterly unknown to him.

A single example was originally taken in brackish water on the south coast by Dr. Power in 1866; and it has recently been found in some numbers by Drs. Sharpe and Crotch under similar conditions near the Chesil Bank.

Its small size prevents it from being confounded with any of our species but *O. exaratus*; from which its duller appearance, closer punctuation, posteriorly more contracted thorax, &c., at once distinguish it; but it cannot be satisfactorily compared with any of our recorded *Ochthebi*, suggesting, as it does, some of the characteristics of *rufimarginatus* and others of the giant *punctatus*.

CIS VESTITUS, Mellié, Soc. Ent. de Fr., 1848, p. 354. I possess a single example of this species, given to me by Mr. T. Morley, who took it in the neighbourhood of Manchester. It is about the size of medium *festivus*, but is narrower and flatter than that insect. Its thorax is narrower and more contracted in front than in any of our species, and is dull, being very closely punctured. The elytra are rather shining, irregularly and closely punctured, and clothed with pile, as in *hispidus*.

BAGOUS INCERATUS, Gyll. (*encaustus*, Boh.), Schön., 76. Mr. Douglas took a single specimen of this exotic-looking beetle whilst hunting for *Corixæ* in a brackish ditch near Gravesend, and I bring it forward on M. Brisout's authority. It appears to occur in Austria and the meridional parts of France in salt and brackish waters; also in Germany and South Russia, and in the Caucasus and Pyrenees. It is larger than any of our recorded species, except *binodulus*, but is utterly unlike any of them, owing to its comparatively short legs, broad flat build, shining appearance, &c. Mr. Douglas' specimen is of an olive-grey colour, with more or less distinct brownish markings on the elytra, an irregular transverse band on the disc being the most conspicuous. The funiculus of its antennæ is 6-jointed.

CEUTHORHYNCHUS ARCUATUS, Herbst, Gyll. (Schön., 154). This handsome species (which I also bring forward on the authority of M. Brisout) was taken some years ago (and also recently) by Mr. J. Kidson Taylor of Manchester; it has also been found by Mr. J. Chappell of the same place, at Cleethorpes, and on the Lancashire coast. I am indebted to each of those gentlemen for a specimen of it. According to M. Brisout it is rare in the north but more abundant in the centre and south of France. It differs from *chrysanthemi*, Wat. Cat., amongst other things, in not having the lateral white marking carried on to the scutellar patch, and from *asperifoliarum* in having the lateral marking originating nearer the shoulder, &c.

CIONUS OLENS, Fab., Redt. I have detected a single example of this fine species among some British *Rhynchophora* taken by Mr. Douglas, and sent to me for names. It appears to be spread over the whole of Europe, and is not rare in the environs of Paris, on *Verbascum*,

during the early spring months. It is about the size of *C. thapsus*, but, unlike any of our other species, is uniformly set with greenish-grey hairs, with a black discal and smaller sub-apical spot on the suture of the elytra.

TOMICUS AUTOGRAPHUS, Ratz., Forst., i., 160, 7. My friend, Mr. T. Wilkinson, of Scarborough, has sent this fine species to me to be named. It was taken by Mr. Lawson, of the same place, about five weeks ago, in tolerable plenty, in some young larch trees in a fir plantation about a mile and a half from Scarborough, where, from the appearance of the trees, it must have been very abundant last year. It belongs to the sub-genus *Dryocætes*, Eich., and is allied to *villosus*, being larger and especially broader than that common insect, with the hairs not so stout or long, the thorax broader and shorter, the sutural stria not so well defined, the apex of the elytra less abruptly retuse, &c.

7, Park Field, Putney, S.W.

13th May, 1869.

Note on the habits of Phlæophthorus rhododactylus and Hylastes obscurus.—In May, and earlier or later, according to the season, *Phlæophthorus rhododactylus* makes the galleries in which its eggs are deposited, in the bark of Furze (*Ulex europæus*). That the furze be dying, or recently dead, seems the only requisite to its attack. I have found it in furze killed by being cut, and in that which appeared to have died of old age; and, though preferring branches about or under an inch in diameter, it is found in all—from the largest to the smallest. As branches of old and sickly plants die from year to year it attacks them, and probably accelerates the death of the plant. It is equally abundant in Broom (*Cytisus scoparius*). The only apparently suitable materials in which I have not found it were a number of furze bushes smothered out of existence by the rapid growth of some fir trees, larch, and spruce.

The gallery is formed directly upwards for nearly a quarter of an inch, and then divides into two branches, at first at right angles to each other, but, as they go upward, tending to become parallel. They are usually of unequal length, and one is sometimes absent. The longest I have seen was less than an inch in length, and half-an-inch would be a fair average. I always find in them a pair of beetles during their construction, and would note here the analogy with *Hylesinus*, where a two-branched burrow is also associated with the habit of both beetles being engaged in its construction. The entrance of the gallery is placed out of sight behind a loose scale of bark, or some slight projection. The ejected frass, which all appears to have been eaten, lies loosely agglutinated together outside, but no operculum covers the opening. I have several times met with an inverted gallery—that is, one going downwards instead of upwards from its entrance. The eggs are laid along both sides of the branches, twenty-five being a maximum for one side of one branch, and the total rarely exceeding forty. The time occupied in their con-

struction I do not know ; in some kept under observation, about a dozen eggs had been laid in three weeks from the date of commencement of a burrow. The eggs are situated rather closely together, each in a little hollow scooped out of the bark ; and they, as well as the insterspaces between them, are covered over with a layer of fine frass, which does not appear to have been eaten ; so that the sides of a completed burrow are formed of this frass, behind which are the eggs. The larvæ start in every direction from the parent gallery, but tend to travel vertically ; so that, when full grown, most of them do so. The greater part of the broods become perfect beetles in late autumn, and pass the winter at the ends of the larval burrows, slowly eating a gallery upwards or downwards, according to the direction the larval gallery had assumed. I have seen galleries so eaten for winter sustenance more than an inch long ; the majority, however, eat very little.

What becomes of those beetles that escape in autumn I do not know ; their number is not great. Others, also few in number, remain as larvæ throughout the winter ; and I have found odd beetles, and even larvæ, under bark from which the broods had apparently gone during the previous year.

Hylastes obscurus also attacks furze, but is more particular as to its pabulum than *P. rhododactylus* ; it rarely attacks stems of less than an inch in diameter, and rarely, almost never, cut-down sticks ; it is partial, however, to the stumps that remain in the ground, and stems of plants dying of age. The latter frequently die on one side first, and this first-dying side is the favourite habitat of *H. obscurus*. The sticks that it has abandoned for one or more years are very numerous, as compared with those that still contain it ; whereas, with *P. rhododactylus*, abandoned sticks are rare. This probably arises from *rhododactylus* more completely separating the bark (leaving a very beautiful "typograph"), and from the smaller size of the branches affected by it causing them much sooner to assume the aspect of dead and rotten wood ; whereas those long abandoned by *obscurus* often continue to look as if they might contain the beetle, until they are quite rotten. I have found few likely stems of furze without traces of *obscurus*, but only a small proportion with that beetle still present. I have also found it, though not abundantly, in broom.

The parent gallery of *obscurus* has only one branch, which is very straight, accurately transverse to the stem, and $\frac{3}{4}$ of an inch to an inch in length. I usually find only one beetle in it, but I have several times found a second, which I believe to have been the male, and in these cases there was usually an abortive branch of the burrow in the opposite direction from the main one, about the length of the beetle ; apparently eaten by the male for food, and containing no eggs.

The eggs are laid at the bottom of little cavities on either side of the burrow, and covered by frass, which fills the cavities to the level of the wall of the burrow, of which there is usually a small unoccupied portion between each cavity, often of such a length that it looks as if four or five eggs had been omitted. I have supposed that the male, or several different males, came and went during the construction of the burrow ; and that these blanks represented periods when the male was too long absent, as I have found them also in other species where the male is sometimes absent, but very rarely in any species in which the male is always present or always absent. I have found eggs laid so near the advancing extremity of the burrow that the beetle must have come out and gone in again backwards to have laid it, though I have never seen a beetle in this position. The number of eggs

laid is small; a dozen on either side would be above the average, though I have seen more. The larvæ burrow upwards and downwards. Many of the beetles assume the perfect state in autumn, and either continue the larval burrow until spring, after the manner of *rhododactylus*, or, escaping, make a fresh longitudinal burrow in a higher portion of the same stick in which they hybernate, apparently eating a little all the winter. I was much puzzled by finding, during the winter, one or more beetles in longitudinal burrows branching from parent galleries, of which the young brood were already for the most part perfect. I believe these were beetles of the young brood which had used the openings of the old galleries to enter the bark, just as they instinctively go to the bottom of a crevice to begin burrowing. Some assume the perfect state during the winter, and not a small proportion pass the winter as larvæ; even now (May 14th) I have some still in the larval state. The period of oviposition is rather later than in *rhododactylus*, and occupies nearly a month.

The full-grown larvæ of *Scolytus* almost invariably burrow into the wood to form a hybernaculum; I have frequently noticed a similar habit in *rhododactylus*, and more rarely in *obscurus*; and, as throwing light on the use of this habit, I may note that in furze they rarely do so, but that those passing the winter as larvæ in broom almost invariably do, the bark of broom being thinner, and when mined by these beetles much more easily separated, a mere touch removing it when soaked with rain.

Obscurus, under the name of *trifolii*, is said to occur in the roots of clover, which is its recognised habitat; and as clover belongs to the same natural order as furze and broom, it seems by no means unlikely that it would eat clover in default of them, but I am inclined to doubt its ovipositing in them.

These beetles seem very free from parasites, a predaceous-looking larva, with a double-hooked tail (very like a miniature *Pyrochroa* larva), and from which I have bred *Rhinosimus planirostris*, is the only one I have found. It is more abundant in old burrows than in those still containing larvæ; so that, if it is carnivorous, and is not satisfied with the damp frass, it probably eats *Acari*, a *Thrips* which is common in old burrows, and other such creatures, more frequently than the larvæ of *Phlæophthorus* or *H. obscurus*.—T. ALGERNON CHAPMAN, M.D., Abergavenny, May, 1869.

Note on Argyra leucocephala.—Mr. Scott told me lately of an interesting habit he has observed in this Dipteron. He met with it in considerable abundance near Morpeth, and says it resembled snow falling and melting immediately it touched the ground; for, when on the wing, the silvery gloss on the body appeared white, but, when the insect settled, the closed wings at once obscured it. This is probably an instance of an obscure colour protecting an insect when at rest, like the brown underside of the common ♂ “ghost” moth.—G. H. VERRALL, London, April, 1869.

Queries respecting a few willow galls.—Thanks to a botanical friend, I shall be enabled to give all my willow galls, except a few, their true botanical position in the descriptive list of galls upon which Mr. Müller and myself are now engaged for this Magazine. I therefore take the liberty of making a few remarks on these galls, but before I commence so doing, I may observe that my collection is indebted

for all of them to the kindness of friends, none of whom, however, sent a specimen of the willow fit for identification. I shall therefore be much obliged to anyone who can send me any of the galls I have briefly described below, accompanied by a specimen of the willow from which the gall was obtained; and I may add that I shall be much obliged if any other willow galls, sent to myself or to Mr. Müller, be similarly accompanied.

The first gall to which I will draw attention was found in Hare Wood, about seven miles from Leeds. It is the form and size of a pea—yellow, with brown spots. The leaf of the willow is lanceolate, and finely serrate towards the tip. The second is a flattish, bag-like gall, orbicular or lobed. The willow is a very small leaved species, and is probably very closely allied to *Salix repens*. I also wish to know the species of the willow upon which the Cambridge rose gall occurs, which Mr. Bond exhibited at the Meeting of the Entomological Society in March, the leaves of which are broadly lanceolate, serrate, and white beneath. I have received a leaf which I imagine to be that of *Salix cinerea*, bearing a large reniform gall on its underside, from Cornwall, and I believe also from the North. In conclusion I may add, that I am much in want of the gall *Andricus noduli*, which Mr. Marshall (vol. iv, p. 102) states, on the authority of Hartig, is the young shoot of the oak, distorted, and loaded with excrescences, said to be common in England.—HENRY WARING KIDD, Godalming, May 7th, 1869.

Note on Aetorhinus bilineatus, Fallen.—Very few collectors of British Hemiptera have, I fancy, met with this little bug, so that a few notes on its distribution here may be interesting. The first record, and probably the only one, of its capture in Britain, is in vol ii, p. 246, of this Magazine, where, after describing the species, Mr. Douglas mentions that three specimens had been taken by the Rev. T. A. Marshall in Leicestershire. When at Rannoch, in 1867, I collected a few Hemiptera, and among them four or five specimens of the *Aetorhinus*, which I did not recognise at the time, nor until Mr. Douglas, in looking over my specimens, named it for me. Moreover I did not know the exact spot where I had taken it. My visit to Ross-shire not only revealed the metropolis of the species, but gave me a hint as to the locality at Rannoch. At Achilty there are numerous small groves of aspens (*Populus tremula*) here and there along the hill-sides, and almost every one of these groves appeared to be dedicated to *Aetorhinus bilineatus*. Now at Rannoch the aspen is not a common tree, and I only remember one off which I got any bugs, and these I have no doubt were this species. For the benefit of Hemipterists who may visit Rannoch I will give precise directions. About three miles from Kinloch on the road to Dall, the first cultivated field (bounded by a wall) appears, lying between the road and loch. On the left side of the road is a small wood; near a very small barn that runs through the wood and crosses the road, stand the aspens. At Achilty the bug was very common, but the male was much rarer than the female, in the proportion of about 1 in 10. They were most abundant at the end of July.

Some other rare bugs occurred at Achilty. Among them were *Sigara minutissima* and *Hydrometra odontogaster*, &c.

As I am collecting materials for a list of Scottish Hemiptera-Heteroptera, I would be greatly obliged for any (even the shortest) notices of the bugs of any

place in Scotland. Coleopterists probably often come across these insects; so if they could find room for them in their laurel-bottles, and, at the end of the season, send them to me, I should be very grateful.—F. BUCHANAN WHITE, Perth, May 10th, 1869.

Abundance in 1868 of the winged form of Velia currens.—Of this insect, so common on running water, I had for many years sought in vain for a winged individual; the hundreds I had taken for examination were all apterous, and I had known only of two or three winged examples being found over a wide area within the period. I was therefore greatly pleased when, in April last year, one of my boys caught, on one of our streams, a fully developed example, and, I having incited him to further search, he soon brought 20 or 30, and above 100 were taken in April and May by others. What was the cause of the acquisition of wings by so many individuals? There was nothing exceptional in the weather of 1867 to favour development—the insects appeared *before* the heat of 1868—and there have been no winged ones since, as might have been expected if heat influences full development; so I apprehend the cause must be sought in other than external circumstances. At present, and perhaps for ever, if this be true, the cause of such irregular development must be hypothetical. In Nature there is always a reserve of power—a capability of replenishing exhausted force and renewing action in one way or another. In insects we see this, for instance, in undeveloped bees and ants, the stage to which the ordinary workers attain being sufficient for the race; but if occasion arrive which requires a different condition of life, development is not arrested in so many individuals as usual—the reserve is brought forward. So it may be as to the development of wings in *Velia*—and doubtless in other insects—that the law of Infinite Wisdom, under which the creatures ordinarily exist without wings, has latent power for the production of these members when they are to become necessary for the welfare of the race, either in removing the individuals to better localities, or in taking them to mingle with other stocks and so prevent deterioration. I say when the wings *are to become* necessary, for they must be prepared in the penultimate state, and the creatures can have no prescience or will of their own in providing for their unknown future.—J. W. DOUGLAS, Lee: 14th April, 1869.

Hints for finding eggs and larvæ of Lycæna Arion.—My observations on the habits of the larvæ of *Chrosia euphorbiana* seem to have contributed to finding that species in England. Perhaps a suggestion with reference to *Lycæna Arion* may enable English entomologists to be the first to unravel the Natural History of the "Large Blue," rare as it is with them.

I may mention, in the first place, that I was astonished to find that in the mountainous parts of Silesia this species had different haunts from those which I hitherto observed it to frequent in the plains; for, when at Salzbrunn, in 1838, I saw it plentifully in the moist open meadows at the foot of Mount Hochwald, whereas near Glogau, as well as at Frankfort and Meseritz, it frequents dry fir-forests, on the most barren and sandy ground. My astonishment would probably have been less had I been then acquainted with the food-plant of *Lycæna Arion*, for I well recollect that in those moist meadows *Thymus serpyllum* was very abundant.

With us this butterfly haunts the lofty fir-forests, where the ground is clothed with bilberry (*Vaccinium myrtillus*), mosses, and straggling plants of wild thyme (*Thymus serpyllum*). It is to be met with throughout the month of July. In order to obtain food, it generally resorts to the open places where *T. serpyllum* grows more freely, and displays plenty of blossoms. There we may often meet with this butterfly in company with hosts of *Hipparchia Semele* and *Alcyone*, *Epinephela Lycaon* (*Eudora*), *Cænonympha Arcania*, all quenching their thirst in the nectar of the flowers of large patches of thyme. At night it reposes between the needle-leaves of some fir-bush, where it may be rather easily seen.

Spending a day (July 28th, 1857) in the Glogau Stadtforst (a locality visited by Mr. Stainton two years previously, as recorded in the Entomologist's Annual for 1856, p. 128), I took the opportunity in the morning, before the heat of the day, to watch closely the females of *Arion*, which were flying slowly, and to observe their doings.

I saw them sit down on the stems of *Thymus serpyllum*, and, after sipping from a few flowers, bend their abdomens between the flower-stalks, on which they deposited a pale green egg, sometimes not without some apparent pains. I gathered a score or so of twigs, each with a single egg. In the afternoon I noticed them proceeding in the same manner, but 'as it was then too hot in the sunshine, the oviposition was only performed under the shade of the trees.

Now what became of these eggs? I totally neglected them! Having found it so easy to obtain them, I postponed breeding the larvæ for some other year when I should be less busy! But from that day to this I have never obtained any more eggs, and here at Meseritz the species is so scarce that I have had no opportunity of observing the interesting history of our largest Blue.

I may mention, in conclusion, that, as the larvæ appear to pass the winter when about half-grown, it will probably be no easy work to rear them to maturity.—P. C. ZELLER, Meseritz, March 29th, 1869.

Notes on the food-plant of Lycæna Corydon and Cænonympha Davus.—With respect to the notices given in this periodical (vol. iii., p. 70 and 91) on this subject, I beg to make the following remarks.—

In the Stettiner Entomologische Zeitung for 1852, p. 125, I published a detailed natural history of *L. Corydon*, and stated that its food-plant is *Coronilla varia*. This is most certainly the case in the neighbourhood of Frankfort-on-the-Oder, Glogau, and Meseritz, where there is neither chalk nor *Hippocrepis comosa*. In the higher parts of Carinthia the latter plant is likely to be fed upon by *L. Corydon*, for there the *Hippocrepis* grows in the greatest profusion in all the meadows where the butterfly occurs, and no *Coronilla* (excepting, I believe, *C. Emerus*). During the first years of my residence at Meseritz I saw no *Corydon*, and few plants of *C. varia*; but as the northern roadway became older, the plant became more frequent, thus last year, not far from the town, I was gladdened with the sight of a few *Corydon*, which no doubt had followed the spread of its food-plant.

I add a few words on the food-plant of *C. Davus*. In England it is stated to be *Rhynchospora alba*; I indicated a *Carex* with long and narrow leaves. It is possible that with us the larva may feed on the *Rhynchospora*, but this plant I have not as yet found only on one peat-swamp, which I have never visited in summer,

when the true *C. Davus* occurs in all our peaty moors and meadows. I imagine that in Britain the larva will feed freely on *Carex*, and it certainly will not die of hunger when supplied with any of the sharp grasses that grow on moors.—ID.

Observations on Plusia Ni (by Professor Zeller), translated from the Isis, 1847, p. 449.—As Treitschke correctly observes, *Plusia Ni*, when on the wing, has a great resemblance to *P. Gamma*, and it requires very sharp powers of observation to recognise the buzzing *Noctua*, by its grey colour, as *Plusia Ni*. Near Syracuse, on the 30th May, I took a wasted male in a fallow-field, where, when started up, it settled again to sleep on a vine-leaf, instead of buzzing at flowers, as is usual. *Gamma* sometimes settles again in the same way, and, indeed, I had almost passed this specimen for *Gamma*. In the neighbourhood of Catania I found specimens of the second brood, on the 3rd of July, in a moist meadow overgrown with rushes; they flew in the forenoon, and when I revisited the meadow a second time, I found them flying readily towards evening, and settling deep in the tufts of rushes, with the head downwards. At Messina I again observed this species, in the second half of August, where they were flying in the dry grass, and amongst *Nepeta calamintha*, on the heights of Castellaccio. One beautiful specimen I took from a small *Asilus*, which had already killed it.

Plusia Ni was, however, most plentiful on the border of a road near Naples, on the 20th of August; they were on this day particularly shy, more like *Gamma*, and whenever I approached them they went over a wall into a vineyard. I also noticed this species in the Campagna to the South of Rome, on the 28th August. This species, at any rate, seems no rarity in the southern part of Italy.

Its most characteristic markings are furnished by the sub-terminal line of the anterior wings and the central markings: the former shows between the 2nd and 3rd branches of the median vein, and between the last branches of the sub-dorsal vein two acute angles, which are open towards the base, and filled with black-brown, and it always bears on its anterior edge, in the interval between the branches of the sub-costal vein and between the 1st and 2nd branches of the median vein, short black-brown longitudinal streaks. The central marking is not silvery, but simply white with a faint gloss, and at the part which hangs on to the median nervure it is filled up with pale grey; the free part is oval, and more or less distinctly separated.

It is very remarkable, but in three male specimens this part is quite distinctly separated on the left wing, but not on the right: on the other hand, in one female the contrary takes place, and in no one specimen is there this separation on both wings.

The male is distinguished from every other species of *Plusia*, except *circumscripta*, by the abdomen. On each side of the 5th segment is a long, almost straight, pale reddish tuft of hairs, which projects but little from the abdomen, but strikes the eye very readily, so that one cannot help wondering how it was not mentioned by Treitschke: below this tuft on the 6th segment is a longer and thinner tuft, of which the tips of the hairs are black; usually these black tips are concealed in the anal tuft, but may be easily fished out with the setting-needle. As I had not observed these appendages, the object of which I am at a loss to conceive, in the fresh specimens, I am not confident that they are really attached

to the above-named segments. Probably other species possess this character in the male sex, and it might furnish a clue to a more natural grouping of the species.

Plusia Daubei, with which I am not personally acquainted, comes very near to *P. Ni* according to Freyer's figure (N. Beit. iii, p. 90, Tab. 256, fig. 1); on the anterior wings it shews the same markings of the sub-terminal line, but it wants the lower oval part of the *Plusia*-mark, and, on the other hand, has the peculiar reniform stigma as in *P. Gamma*. Boisduval says of *P. Daubei* (Index p. 159), that it is smaller than *Ni*; but according to Freyer, it is almost larger than *Gamma*.

Description of the larva of Aporophila australis.—On October 5th, 1867, Mr. Thomas Terry, of Babbicombe, gave Mr. Hellins some eggs of this species, laid by a captured ♀ about three weeks previously.

On Oct. 16th larvæ began hatching; they fed on *Poa annua* and other smooth grasses, and chickweed, and, being kept in a warm place (out of doors), did not seem to hibernate, but fed slowly through the winter, and by the end of January, 1868, were half-an-inch in length: from this time they fed and grew more rapidly till April, and all of them had gone to earth by the middle of that month. The moths appeared September 22nd to October 10th.

The egg is full and round in shape, with about 20 ribs, of which a third meet at the top, and the rest stop short in the angles formed by their junction, all connected by transverse reticulations; the ground-colour pale yellow, but splashed with purplish-pink.

The larvæ, when hatched, are greenish, with a blackish tinge on the back of the front segments, the head brown, the under-side paler than the back, the usual dots distinct, each furnished with a stiff bristle.

After a moult they become smooth, of a full green colour, with a darker dorsal line and a whitish sub-spiracular stripe, the folds showing yellow, and so they continue to near half-an-inch in length.

When this size has been attained varieties begin to develop themselves, some remaining wholly green with double purplish-red dorsal lines, while in others the sub-spiracular stripe becomes edged above with a spiracular line of purplish-pink.

At the next change the dorsal purplish-red lines open on the centre of each segment, disclosing a pale pinkish diamond, and the sub-dorsal faintly appears now as a fine double pinkish line.

The next moult produces a further development quite characteristic of the adult; the larva is now an inch long; in some the green of the back is of a yellower tint, and the sides a bright rose-pink; in others a brilliant grass-green, and sides purplish-pink; at this stage the dorsal line is flesh colour edged with pink or red, and on the front of each segment is a pair of short black marks placed obliquely, so that but for the dorsal line they would form a Λ with its apex pointing forwards: the sub-dorsal line is also marked with black at beginning of each segment; the sub-spiracular stripe yellowish.

The full-grown larva is one of the handsomest and most gaily coloured of the *Noctuæ*, is one inch five-eighths in length, rather stout and cylindrical, slightly tapered towards the anal tip.

The ground colour is now a very brilliant yellow-green, or in some individuals greenish-yellow; the head green freckled with reddish, a red, unpolished semi-

circular plate on the back of the second segment; on the back of each of the other segments is a red diamond, the front part of which for about a third of its length is black, through which runs the flesh-coloured or pale pinkish dorsal line edged with red, thus cutting what would be a black triangle into two black wedges pointing forwards; in the centre and sometimes hinder portions of the red diamonds the dorsal line becomes often suffused with their colour. The sub-dorsal line black, but only at the beginning of each segment. The spiracles white placed in semicircles of black; and the space between them and the sub-dorsal line thickly freckled and streaked with deep red, appearing like a broad band of red along the side; the sub-spiracular stripe very pale primrose-yellow, its lower edge softened a little into the ground colour, and followed below by a blotch of red or pinkish on each segment; the prolegs tipped with the same colour; the ventral surface pale yellowish-green.

Var. 1. The ground colour a rather deep reddish-pink on the back and sides. The freckled side band and dorsal diamonds of darker purplish-red, with all the other details as in the preceding.

Var. 2. Ground colour of the whole surface olive-green, but appearing on the back only at the beginning of each segment as a transverse narrow band, in which can be seen the pinkish-white dorsal line and the black wedges, though much shortened; the rest of each segment is covered by a broad, transverse, dark purplish-brown band extending to the spiracular region and hiding all other marks; each white spiracle in a large black blotch connected with a narrower blackish-brown transverse band on the ventral surface of each segment; the head, entire second and half the third segment, anal tip, and legs, also a faint spiracular line visible only on the anterior segments, are all of the olive-green ground colour.

The pupa is subterranean (but not enclosed in a hard cocoon), its shape is very cylindrical, tolerably even in bulk throughout, very smooth, but rather thicker in the middle, the tail ending with a small spike. Its colour a rich brown, and polished.—WM. BUCKLER, Emsworth.

Occurrence of Acidalia herbariata in London.—Three or four specimens of *A. herbariata* were taken last June, in the shop of a herbalist, in Holborn; two specimens, both males, are now in Mr. Bond's collection. One of the examples taken was a very worn female—on examining his stock, the only plant the herbalist could discover had been eaten was tansy.—E. G. MEEK, Old Ford, May 1869.

Scoparia Zelleri in South Devon.—I have taken this insect in S. Devon for more than a quarter of a century; we used, when boys, to beat it occasionally out of hedges near Teignmouth, and then placed it next to *Botys fuscalis*. Growing wiser as we grew older, we called it *Eudorea cembra*, and as the female of this insect I always regarded it until the appearance of Dr. Knaggs' monograph of the genus *Scoparia*. Any visitor to Teignmouth may capture *Scoparia cembra* commonly on the beach beyond the Ness Rock, sheltering amid the *Eupatorium*, which there grows abundantly, but *Zelleri* is only caught occasionally, either at light or by beating hedges.—R. C. R. JORDAN, 35, Harborne Road, Edgbaston, Birmingham: May 14th, 1869.

Pterophorus hieracii.—The readers of the Entomologist's Monthly Magazine will remember the discovery made of the larva of a species of *Pterophorus* on *Teucrium*

scorodonia by Mr. Greening, of Warrington. On examining this with genuine specimens of *Pterophorus hieracii*, sent by Professor Zeller to Mr. Doubleday, and by Herr Mühlig to Mr. Stainton, it is evidently a quite different species; and next month, I hope to describe it under the name of *Pterophorus teucii* (Greening), taking advantage of the opportunity to give a short monograph on the nearly allied European species. I should feel very much indebted to any one who would in the mean time collect evidence as to the existence of the true *hieracii* in England, as also to those who have an opportunity of examining exotic collections, if they would kindly compare the *Pterophorus teucii* with the *P. marginellus* of Zeller; this species I have never seen, and the description in Linnæa Entomologica, it must be confessed, agrees in many respects very closely with the proposed *P. teucii*, especially in the ground colour of the wings "*brunneo fuscus*," and in its having the "*linea in ciliis costæ ante apicem tenuis nivea*." Any Entomologist clearing up these two points would confer an obligation on me.—ID.

New locality for Argyrolepia ceneana.—On the 1st June, 1868, I took a specimen of this *Tortrix* in a wood between Herne and Canterbury, about two miles from the former place.—J. W. DOWNING, Vauxhall Bridge Road: April 25th, 1869.

Worcestershire captures of Lepidoptera in 1868.—This account of my doings in the past season may perhaps interest some of your readers.

March 2nd, *A. prodromaria*, 3 bred; *T. populeti*, 3 bred; *T. munda*, 4 bred. April 4th, *X. conspicillaris*, already recorded, 1 bred. April 19th to May 10th, *T. extersaria*, 15 bred. April 19th, *P. palpina*, 4 bred; 27th, *A. berberata*, 6 bred. May 8th to 20th, *C. ocularis*, 12 bred; 19th, *E. heparata*, 2 bred; *E. plumbeola*, 2 bred; 20th, *H. genistæ*, at sugar, 6; *H. suasa*, at sugar, 1; *A. megacephala*, 2 bred; 28th, *T. extersaria*, 2, beating; *L. hexapterata*, 6, beating; *C. mesomella*, 1, beating; *M. Artemis*, several; *L. sinapis*, several. June 1st, *E. decolorata*, 2, beating; *E. heparata*, 2, beating; *C. propugnata*, 4, beating; *B. pandalis*, 1, beating; *A. plagiata*, 2, beating; 2nd, *C. bifida*, 1 bred; 10th, *S. undulata*, 1, beating; *S. apiformis*, 27 bred; *A. luteata*, 2, beating; *E. lariceata*, 4, beating at the Trench Woods, and 2 in my garden, where larches are growing; *E. porata*, 2, beating; 15th, *A. advena*, at sugar, 4; 15th to 25th, *C. porcellus*, at flowers, 9; 16th, *A. corticea*, at sugar, 1; 18th, *A. rubidata*, 1, beating. July 2nd, *C. quercana*, 1 very fine, stamped it out of an oak; *M. miniata*, 4, beating; *A. tumidella*, 3, beating; *N. roborella*, 1, beating; 7th, *C. affinis*, at sugar, 1; 11th to 27th, *T. betulæ*, 22 bred from 25 larvæ taken off *Prunus spinosa*; 3 of the number having been stung. Seven males appeared before any female ventured out of the pupa. Every season for the last ten years I have bred this species, and have always found the males first to emerge. August 3rd, *C. nupta*, 5 at rest; 8th, *H. sylvinus*, 1 at rest; she laid some white eggs, which upon the following day became perfectly black; 13th, *C. cytherea*, at sugar, 3. September 5th, *A. lunosa*, 6, at sugar; 19th, *X. aurago*, 1, at sugar; *C. miata*, 3, at rest; 22nd, larvæ of *C. furcula*. October 9th, larva of *E. orbicularia*. The last four seasons I have searched carefully for larvæ of this insect, but I have only succeeded in taking one each season; 15th, *V. Atalanta*, a singular variety of this species I captured in my garden. The margins of the under-wings are bright yellow instead of scarlet, and there is a profusion of hair around the body near the inner margins, light brown and white.—ABRAHAM EDMUNDS, Cemetery House, Astwood Road, Worcester, May, 1869.

Do birds eat the larvæ of Cucullia?—A paper was read on the 1st March, at the Meeting of the Entomological Society of London, "on the relations between Insects and Insectivorous birds," by Mr. J. Jenner Weir.

This paper broaches a theory founded on certain experiments by Mr. Weir, which theory is so opposed to what I have observed to take place in Nature that I must suppose either that the birds upon which he made his experiments reject, in confinement, food which they would partake of if at liberty, or that some birds will eat certain larvæ which may be distasteful to others.

I will simply refer to his theory of coloured larvæ, as instanced by the genus *Cucullia*, being rejected by birds.

I have for many years grown *Verbascum thapsus*, the food-plant of *Cucullia verbasci*, as well as several other food-plants of the genus, in my garden, to attract the moths.

I have some years had hundreds of larvæ of *C. verbasci* which fed up to a certain size, but as soon as they begin to show colour and size, and appear on the upper side of the leaves and on the stems to partake of the flowers, down come the birds and off go the larvæ.

The same thing has happened with *Cucullia absinthii*, much to my annoyance.

I therefore cannot feel so satisfied as Mr. Weir expresses himself to be, that "as a general rule birds refuse to eat gaily coloured larvæ."—H. D'ORVILLE, Alphington, May 4th, 1869.

Capture of Deilephila lineata at Folkestone.—A good specimen of *D. lineata* was brought to me on the 7th inst. A boy found it at rest on the grass in "the Warren."—HENRY ULLYETT, Folkestone, May 10th, 1869.

Deilephila lineata in Gloucestershire.—The other day the remains of a large moth were brought to me, which I had not much difficulty in determining as *D. lineata*. It was taken last autumn at Great Risington, about four miles from this place, and when caught was in first-rate condition. It was in the school-room window of the clergyman's house, and a bird was pecking at it from the outside. When brought to me, the remains consisted of a portion of the body, and one hind-wing and a half!—E. HALLETT TODD, Aldsworth, Gloucestershire, April, 1869.

Note on Eriogaster lanestris.—In the summer of 1866 I had larvæ of this insect, about 100 of which went to pupæ. The dates at which they have emerged are worth noting:—1867, first moth on February 2nd; 1868, February 20th; 1869, April 6th! There are some yet in pupa; when may they be expected next year?—ID.

Sericoris euphorbiana bred.—This morning, on looking into my breeding-cage, I was pleased to find that a fine specimen of this species had emerged from a pupa obtained from larvæ collected by me at Folkestone, in September last.—HOWARD VAUGHAN, Kentish Town, 3rd April, 1869.

Nyssia hispidaria at Hampstead.—A few weeks ago I captured a large male of *N. hispidaria* on a fence at Hampstead, where I have often searched for that species without success.—ID.

Eupithecia consignata bred.—I have bred six fine specimens of *E. consignata* within the last few days, from eggs kindly sent to me last spring by Mrs. Hutchinson, of Grantsfield. I have entirely failed in getting them to pair.—H. HARPUR CREWE, Drayton Beauchamp, May, 1869.

The late Dr. L. Imhoff's Works, Manuscripts and Collections.—The November number of this Magazine contained an obituary notice of Dr. L. Imhoff, and there will shortly appear in Switzerland a "Necrolog" of the same naturalist from the pen of Professor C. L. Rütimeyer.

In connection therewith the following memoranda may be of some interest, and, in publishing them, I hope to meet with the approval, not only of the respected author of the "Bibliotheca Entomologica," but of all those who are agreed that in the interest of science it is the duty of the survivors to preserve an exact record of the work done by those who have died at their post.

PUBLISHED WORKS.—To the almost complete list up to 1862, in Dr. Hagen's work, there are to be added—

"Catalogus Piezatorum (Hymenopterorum) circa Basileam nec non in aliis Helvetiæ regionibus repertorum." Basilea, 1 fol. (1838?).

"Sammlung ausländischer Käfer und Schmetterlinge in naturgetreuen Abbildungen von T. D. Labram. Mit Text von Dr. L. Imhoff." 1838. Basel, 8vo; 2 numbers, each with 4 pages text and 4 plates, some of which are coloured (*Papilio Doreus*, *Eriippus*, *Bolina*, et *Diaphanus*; *Syntomis Lethe*, *Procris Lichas*; *Acræa Horta*; *Passalus Heros*; *Catoxantha angusta*; *Chrysochroa wanthotenia*).

Lacordaire's notice of a "Heft" No. 19 of the "Singulorum generum Curculionidum," is correct (compare Hagen, Bibl. Ent. I, p. 401). The aforesaid publications are in my possession. Labram's original pencil drawings to Dr. Imhoff's work about the *Curculionidæ* are also in my hands, as well as many of those of the "Insecten der Schweiz;" but what has become of the remainder of the latter, particularly of the finely executed drawings of the Diurnal *Lepidoptera*, I am not able to state at present.

MANUSCRIPTS.—Of these I have secured—

"Ludovici Imhoff Dissertatio, in qua insecta nonnulla succino inclusa describuntur et figuris illustrantur," etc. 4to; ann. 1 tab. (8 *Diptera*, 1 *Phryganea*, 1 *Termes*, and 1 *Chrysomela*, from the Public and Bernoullian Collections at Basle). No date.

"Kirby's Arten des Genus *Bombus*" (a critical comparison of Kirby's with continental species). No date.

"Europäische Arten des Genus *Bombus* in der Hellwig-Hoffmanseggischen Sammlung." No date.

COLLECTIONS.—Dr. Imhoff's first and most complete one, combining all orders of Swiss insects, with the types of the species described by him as new, was bought, many years ago, by Professor L. Agassiz, for the Museum of Comparative Zoology in Cambridge, Mass. (see Hagen, Stettin. Ent. Zeitung, 1868, p. 115).

Swiss entomologists will not fail to appreciate the fact that this collection (together with other European ones) is now under the care of Dr. Hagen himself; and it is to be hoped that this coincidence will be in due time made use of to settle the many open questions, particularly in the order of the *Neuroptera* taken in the Linnæan sense.

A very large assemblage of (mostly exotic) beetles, including the majority of the *Curculionidæ* described by Dr. Imhoff, has been acquired by Andreas Bischoff-Ehinger, of Basle, to whose liberality and studiously neat collection the former, on more than one occasion, owed the means of continuing his works.

A second general collection has been deposited in the Public Museum at Basle, and I would here express my hope that every Swiss specimen belonging to it may be carefully preserved, if possible, with Dr. Imhoff's own labels, to enable workers to use the insects as types, as it would be rather a round-about way to have to get information on that head from America.

The library of Dr. Imhoff has been dispersed.—ALBERT MÜLLER, Penge, S.E., April, 1869.

The late Mr. Edward William John Hopley.—This gentleman, whose name will be familiar to our readers, died at his residence, No. 14, South Bank, Regent's Park, London, on the 30th April, at the age of 53. Intended by his friends to follow the profession of medicine, Mr. Hopley was, in early life, articled to a surgeon at Brighton; but he soon relinquished that profession for the, to him, more congenial one of an artist, in the exercise of which he had attained no small degree of celebrity, and he was always ready to acknowledge the assistance to his art-career which his early anatomical studies had afforded him. For many years he had been an assiduous collector of British *Lepidoptera*, and turned his attention especially to the subject of variation, on which he largely experimented, by subjecting certain larvæ to forced diet and unusual conditions. As our pages will show, he was a genial writer and minute observer. And he will long be remembered by a large circle of friends for his unvarying courtesy; an evening spent with him in his studio, surrounded by a combination of the beautiful works of art and nature, was an event not likely to be soon forgotten by the numerous entomologists who enjoyed that privilege. About two years since, Mr. Hopley was attacked by an insidious renal disease, of a kind that has hitherto baffled all medical skill, and though he retained his habitual happiness of disposition up to the last, he knew that, sooner or later, he must succumb to its ravages; yet only a short time before his death he had occupied himself with a re-arrangement of his collection in a new cabinet, scarcely anticipating apparently that the end was so near. One or two of his most beautiful pictures received the artist's finishing touches only a few days previously to his demise.

Review.

THE INSECT WORLD, being a popular account of the Orders of Insects; by LOUIS FIGUIER; second edition, revised and corrected by E. W. JANSON. London: CHAPMAN & HALL, 1869.

Those who desire a popular treatise on general Entomology, profusely illustrated, cannot do better than supply themselves with this English translation of Figuiér's "*L'Insecte*." The writer belongs to the class of "book-makers" with whom we have little sympathy, yet a careful compilation from trustworthy sources is often better than original works by superficial observers, such as we too frequently see; and M. Figuiér appears to have had good advisers as to the books he should consult. One portion, at least, of the English translation is likely to be free from striking errors, as the second edition has been entrusted to a gentleman

whose extensive knowledge of *Coleoptera* is indisputable; and the rest seems tolerably correct. The illustrations are, as a rule, well engraved; yet many are very poor, being of the well-known unnatural French type, and the worst are those taken from older authors, which seem to be pressed into their service by all French popular writers on insects with such accurate copying, that one is almost induced to fancy that the same wood-blocks do duty in rival publications. The work is handsomely got up, and will no doubt form an attractive ornament on many drawing-room tables.

We cannot refrain from remarking on the low price at which these French works are published, as compared with similar English ones, though the demand on the other side of the Channel can scarcely be greater than here. The secret lies in the cost of production, and it is a humiliating fact that the artistic work of a volume like this can probably be done on the Continent for almost a tithe of what it would cost in England. Even printing in the English language can be executed in some of the large German towns at a far lower rate than at home, and on equally good paper. We say this in no disparagement of an enterprising class of artisans: the difficulty remains to be solved by the political economist.

ENTOMOLOGICAL SOCIETY OF LONDON, 3rd May, 1869. H. W. BATES, Esq., F.Z.S., President, in the Chair.

C. O. Waterhouse, Esq., Assistant in the Zoological Department of the British Museum, was elected a Member.

Mr. Stevens exhibited a large collection of Chinese *Coleoptera*.

Mr. Butler mentioned that the West African *Conocephalus*, exhibited by him at the Meeting on the 15th February last, was still alive, though it had eaten nothing.

Professor Westwood exhibited, and remarked upon, several species of *Ephyris* and other *Hymenoptera* of doubtful position, including an example of *Calyoza staphylinoides*, Hope, taken at large at Natal, the species having been originally described and figured (Trans. Ent. Soc. 1st series, vol. ii, p. 56, pl. 7, fig. 11), from an example enclosed in Gum Animé.

Mr. Horne read some observations on the habits of various Indian insects.

Mr. F. Smith exhibited both sexes of a *Cynips* sent to Mr. Darwin by Mr. Walsh, as recorded in the last number of this Magazine (vol. v, p. 298). Concerning this most interesting discovery we give the following extract from Mr. Walsh's paper in the "American Entomologist" for February, 1869:—

"The true 'Oak-apple,' as it is popularly called, occurs exclusively upon the Black Oak (*Quercus tinctoria*). It commences its growth in May, or as soon as the young leaves put forth, and reaches its full size in a few weeks. The central cell, in which the larva resides, becomes eventually hard and woody, but the space between that cell and the external skin or rind of the gall is always completely filled by soft, drab, spongy matter. By the fore-part, or middle, of June, both male and female gall-flies (*Cynips Q.-spongifica*, O.S.) eat their way out of a certain number—say about a fourth part—of these galls. The remaining larvæ lie dormant for more than two months, when they change into the pupa-state, and subsequently, about October, eat their way out in the form of gall-flies (*Cynips Q.-aciculata*, O.S.),

closely allied to, and yet quite distinct from, those produced in June. Out of thousands of these autumnal flies examined by us, all were females, with not a single male among them; and we have experimentally ascertained, by colonizing a number of these females upon isolated black-oaks known to be not previously infested with oak-apples, that they cause apples to be generated in the following spring upon such isolated oaks. From oak-apples produced in this manner we have bred two specimens of the spring form (*Q.-spongifica*) of gall-fly which exists in both sexes, and five specimens of the autumnal form (*Q.-aciculata*) which exists exclusively in the female form. Finally, treating these five autumnal specimens in the same manner, *i. e.*, placing them upon another isolated black-oak, we obtained galls in the following spring which produced two specimens of the spring form (*Q.-spongifica*), thus showing that the autumnal form sooner or later reverts to the spring form. Hence, as well as from other considerations, we may infer that the former is *not* a distinct species, but a mere dimorphous female of the latter; for otherwise one form could not generate the other. The bastard oak-apple matures like the preceding in June, but is found exclusively upon the red-oak (*Quercus rubra*). It differs from the preceding in never reaching so large a size, in the central cell not being woody, but consisting of a mere shell which can be readily broken with the thumb-nail, and in its being only connected with the external rind by slender radiating filaments. Males and females (*C. Q.-inanis*) absolutely indistinguishable from the spring form of the preceding species, are obtainable from this gall in June; but after repeated trials we have never succeeded in breeding from it a single autumnal female, and we do not believe that any such form exists. Hence, and also in consequence of the very great dissimilarity of the galls, and their always growing upon distinct species of oak, we are compelled to consider these two gall-flies as distinct species, although when placed side by side the forms generated in the spring are always exactly like each other."

Mr. McLachlan exhibited all the forms of a small species of *Termes* brought from St. Helena by Mr. Melliss, and being the same to the ravages of which, in that island, Mr. Layard called the attention of the Society in 1866 (Trans. Ent. Soc. 3rd series, vol. v, Proc. p. xii). Mr. Layard stated that the insect had been introduced in timber from the Coast of Africa, but Mr. McLachlan could not identify it with any described African species, and was inclined to consider it the *T. tenuis* of Hagen, which inhabits the West Indies and Brazil. Considering that St. Helena is a place of call for vessels from all quarters, there is no reason why it should not have originated from the West; though one would naturally look to Africa as its home, and from this cause he was inclined to think that the idea of its coming from thence had originated. It is an anomalous species in its structure, in which it agrees with *T. tenuis*. Mr. McLachlan also exhibited a large number of small black *Poduræ* placed in his hands by Mr. Henry Lee, and concerning which it was stated that they had been found at Hungerford, on the 10th April, on the surface of a duck-pond, which they covered to such an extent as to give the idea that a bag of soot had been emptied over it.

Mr. A. R. Wallace read "Notes on eastern Butterflies (*Diadema*)."

Mr. Butler read "Descriptions of a new or little known forms of Diurnal *Lepidoptera*."

NEW SPECIES, &c., OF *HEMEROBIINA*; WITH SYNONYMIC NOTES
(FIRST SERIES.)

BY E. M'LACHLAN, F.L.S.

FAMILY OSMYLIDÆ.

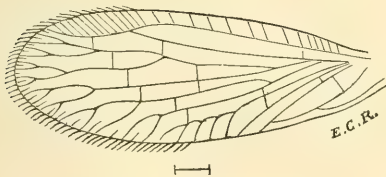
CLIMACIA, n. g.

Antennæ moniliformes, alis paulo breviores; articulo basali bulboso. Ocelli nulli, occiput fornicatum; frons triangularis; labrum excisum; maxillæ (?) setis duabus elongatis rectis instructæ; palporum maxillarum articulus ultimus quarto paulo longior, subulatus. Prothorax elongatus, capite angustior. Abdomen vix robustum, ad apicem attenuatum; fæminæ terebrâ rectâ, sursum directâ, instructum. Pede sgraciles; tarsorum articulo 1^o elongato, 2^o et 5^o brevioribus, æqualibus, 3^o et 4^o brevissimis; ungues parvi, simplices; plantula parva. Alæ ovatæ, ad apicem obtusæ; anticarum subcosta et radius sub-parallelæ, distantes, ante apicem conjuncti, pterostigmate dilatato; area sub-costalis venulâ transversali singulâ basali instructa; furculæ marginales apicales duplices, dorsales simplices; venulæ paucæ, seriebus duabus gradatim dispositæ, cum venis robustæ, ciliatæ; fimbriæ breves: posticæ fere anticas simulantes.

Type: *Micromus areolaris*, Hagen, North Amer. Neurop., p. 199.

This curious little insect evidently belongs to the *Osmylidæ* in the sense defined by Brauer; and Hagen, in his "*Synopsis synonymica*," had already placed it doubtfully in the genus *Sisyra*, at the same time indicating that a new genus should be formed for its reception. From

Sisyra it differs in the presence of a veinlet at the base of the sub-costal area, and of two well-defined series of gradate veinlets; also in the elongated prothorax, and long triangular face. I have indicated the



Anterior wing of *Climacia areolaris*.

presence of two curious setiform organs, apparently connected with the maxillæ, but am by no means sure of their actual position and relationship.

Hagen received the insect from Florida (March); I possess a pair from Bosque County, Texas, taken by Mr. Belfrage (in August). It is probably aquatic in its earlier stages.

FAMILY HEMEROBIIDÆ.

DREPANEPTERYX BEROETHOIDES, *n. sp.*

♀. *D. griseo-flavescens*. *Caput thoraxque utrinque fusco-nigri: antennæ flavæ, nigro-annulatæ. Pedes flavo-albidi, fusco-signati. Alæ angustæ: anticæ margine costali prope basin valde elevato, in medio latè exciso; apice longè falcato; margine apicali sub apicem latè exciso; griseo-fuscæ, marginibus venisque longitudinalibus nigro-punctatis; sectores sex: posticæ albido-hyalinæ, latè fusco-limbatae.*

Long. corp. 3''' ; exp. alar. 10'''.

Hab. Australia.

Head and thorax dull greyish-yellow, the sides above blackish; face shining yellowish, suffused with blackish; *antennæ* yellow, narrowly annulated with black; *palpi* blackish. *Legs* whitish-yellow; anterior and intermediate femora and tibiæ strongly spotted with black; posterior femora internally with a long fuscous cloud; apical joint of all the tarsi blackish. *Abdomen* fuscous, paler beneath.

Wings long and narrow: anterior pair with the costal margin very narrow at base, then, near the base, strongly and roundly elevated, afterwards very longly and shallowly excised; apex produced into a long curved hook, the margin below the apex deeply excised; colour greyish-fuscous, with a darker transverse cloud before the apex; costal margin regularly dotted with black and yellowish, apical margin (excision) narrowly blackish, with pale whitish-yellow spaces, costal veinlets, radius, and sectors yellow, strongly dotted with black; six sectors; two series of gradate veinlets, of about six each, placed very obliquely and parallel; cellule at base of costal area long, occupying nearly the whole of the very narrow base of the area: posterior wings with the apical margin longly excised; whitish hyaline, apical and dorsal margins with a very broad smoky fuscous border, extending nearly to the base, hence the hyaline ground is reduced to an oval basal space; veins pale yellowish in the hyaline portion and blackish in the rest.

A very peculiar species, with the facies of the Indian and American forms of *Berotha*; differing widely on the one hand from the European *D. phalænoides* and the Indian *D. fulculoides*, and on the other hand from the Australian and New Zealand group represented by *D. binoculus* and its allies, yet agreeing structurally sufficiently well to admit of its being considered generically identical. Lent to me by Mr. Walker.

HEMEROBIUS PERPARVUS, *n. sp.*

H. rufo-fulvus, fusco-nigroque varius. Antennæ flavæ, ad basin fusco-annulatæ, ad apicem nigricantes. Pedes flavi, tarsis anticis intermediisque nigro-annulatis. Alæ albido-hyalinæ: anticæ griseo-guttatæ; venæ venu-læque albidæ, fusco-punctatæ, pilis longis, erectis, nigris, ciliatæ; sectores duo.

Long. corp. 1½''' ; exp. alar. 3¼'''.

Hab. Texas. In coll. auct.

Head and thorax reddish-fulvous, the latter varied with black above. *Antennæ* yellow, obscurely annulated with fuscous, the apical portion totally blackish: *palpi* piceous. *Abdomen* yellowish, clothed with concolorous hairs; in the male the last ventral segment is produced into a short, triangular, yellow, ciliated borer-like appendages. *Legs* whitish; anterior and intermediate tarsi annulated with blackish.

Wings whitish hyaline: anterior pair with numerous small rounded grey spots, which are very conspicuous along the inner margin; veins whitish, with minute fuscous dots, from each of which arises a long erect blackish hair; margins longly ciliated; two sectors; five veinlets in the inner gradate series, four in the outer.

I received three examples of this very minute and delicate species from Mr. G. W. Belfrage, by whom they were taken in Bosque County, Texas, in September.

FAMILY CHRYSOPIDÆ.

CHRYSOPA EXUL, n. sp.

C. flavo-viridis. *Caput punctis quinque rufescentibus (quorum duo apud verticem, unum inter antennæ, unum ad genam utramque) signatum. Prothorax supernè punctis quatuor, utrinque lineâ his paullo inferâ, nigris, carinâque mediâ transversali, utrinque rufescenti, instructus. Ungues ad basin valde dilatati, apicibus valde incurvatis. Alæ latæ, venis venulisque omnino pallidè viridibus; anticarum cellula tertia cubitalis ut in C. vulgari.*

Long. corp. 5''' ; *exp. alar.* 13'''.

Hab. in insula Sanctæ Helenæ. *In coll. auct.*

Yellowish-green. *Head* with five small reddish dots, whereof one is placed on each side of the vertex, one between the antennæ, and one on each cheek. *Palpi* fuscous. *Antennæ* yellowish at the base, afterwards brownish, the basal joint very strongly inflated. *Prothorax* with a strongly raised median transverse ridge, on each side of which is a small reddish dot; the sides oblique in front; a black spot at each angle above, and a black longitudinal line on each side a little inferiorly. *Meso- and meta-thorax* unspotted. *Abdomen* greenish, with a fuscous dot on each side of the base above. *Legs* whitish, the tarsi reddish-brown; *claws* strongly dilated at the base, afterwards with the apices greatly incurved.

Wings broad, scarcely acute at the tips, hyaline and iridescent, veins and veinlets all greenish, ciliated: the third cubital cellule in the anterior wings as in *C. vulgari*s.

I possess one example, brought from St. Helena by Mr. Melliss, who also collected two specimens of another *Chrysopa* in the same island, which do not seem sufficiently distinct from the abundant European *C. vulgari*s, already reported from Madeira and Mauritius.

CHRYSOPE PUNCTINERVIS, n. sp.

C. flava, brunneo-varia. Caput vittis quatuor, longitudinalibus, brunneis, apud verticem signatum; fronte brunneo-vario, genis maculâ elongatâ nigrâ utrinque ornatis. Palpi flavi, lætè nigro-annulati. Antennæ brunneæ, basin versus flavidæ, articulo basali supernè lineâ brunneâ signato. Thoracis vitta lata utrinque, lineaque mediana angusta, necnon abdominis maculæ dorsales plurimæ, brunneæ. Pedes albidi, femoribus ad apicem brunneo-semi-annulatis: ungues simplices. Alæ vix latæ, ad apicem rotundatæ, hyalinæ; venæ venulæque albidæ, regulariter nigro-punctatæ: anticarum cellula cubitalis tertia ut in *C. septempunctatâ*.

Long. corp. 3-4''; exp. alar. 9-10''.

Hab. in Texas. In coll. auct.

Pale yellow. Head: vertex with four longitudinal brown lines, the two middle ones longer than the outer, and slightly interrupted; a small brown V-shaped spot between the antennæ, and a brown line on the basal joint of the latter: front varied with brown, and with an elongate black spot on each cheek. Palpi yellow, broadly annulated with black. Antennæ brownish, the basal portion yellow. Thorax yellow, with a very broad brown stripe along each side, and a narrow median line, which is most evident on the prothorax. Abdomen yellow (that of the female much dilated), with numerous, more or less confluent, brown spots along the back. Legs whitish, with short blackish hairs; femora with a black spot internally at the apex; claws simple.

Wings rather narrow, the apex rounded, hyaline; veins and veinlets whitish, all (excepting the radius, which is wholly pale) with regular tuberculated black dots, from each of which springs a short blackish hair; pterostigma rather long, dirty yellowish: third cubital cellule of the anterior wings as in *C. septempunctata*.

I have two ♂ and one ♀ of this, collected in Bosque County, Texas, in summer, by Mr. G. W. Belfrage. It is remarkable for the regular punctuation of the neuration, as ordinarily in *Chrysopa* this is entirely pale or dark, or with black spaces only at the two ends of each nervule.

CHRYSOPE NIGRA, n. sp.

C. albida, nigro-varia. Caput maculis duabus magnis verticalibus, lineâ supernè ad basin antennarum, lineisque tribus in fronte, nigris signatum; antennæ nigro-fuscæ, pallido-annulatæ; palpi fuscæ. Prothorax albidus, nigro-ciliatus, margine antico punctisque lateralibus nigris. Meso- et meta-thorax albidi, nigro-varii. Pedes albidi, femora maculâ extûs ante apicem nigrâ signata; tibiæ nigro-bi-annulatæ: ungues breves, curvati, simplices. Alæ hyalinæ, angustæ, venis venulisque (præter nonnullas in medio albidas) nigris: anticarum cellulæ cubitalis tertiæ venula separans venulæ transversali superpositæ æqualis. Long. corp. 3½''; exp. alar. 9''.

Hab. in insula Antonio (Cape de Verdes). In coll. auct.

CHANGES OF ADDRESS.

- A. E. HUDD, from 1, Gloucester Row, Clifton, to Stapleton Lodge, Stapleton, near Bristol.
- Dr. F. BUCHANAN WHITE, from Perth, to Fasnakyle, Strath Glass, Inverness-shire.
- PROFESSOR ZELLER, from Meseritz, to Grünhof, bei Stettin (Lange Strasse 46), Prussia.
- W. G. PELERIN, from 55, Sandringham Road, to 10, Hertford Villas, Montague Road West, Dalston, N.E.
- J. R. WELLMAN, from 3, South Ville, Wandsworth Road, to 14, Portland Place North, Clapham Road, S.W.

EXCHANGES.

I shall be happy to forward cases of *Coleophora genista* to any one wanting that species, on receipt of two stamps for return postage. The larvæ are now nearly full-fed on *Genista anglica*.—T. J. CARRINGTON, 1, Melbourne Terrace, York.

Duplicates.—I have a number of *Polyommatus Corydon* and of *Hipparchia Semele*; also a few good *Arge Galatea*. I shall be very happy to exchange any or all of these for others of the Macro-Lepidoptera, or to send specimens gratis to any gentleman who will send a box for them and enclose return postage. If any gentleman has duplicates which he would like to part with I should be glad if he would write before sending a box. There is a respectable number of species even among the Butterflies which are *desiderata* to me; amongst others *Aporia crategi* and *Leucophasia sinapis*, and I should like to obtain fresh examples of *Erebia Blandina* and *Cassiope*, as my own are poor. I fear, however, the duplicates I have are no equivalent for these species. I have some *Gonepteryx rhamni* (nearly all males) for any northern collector who is in want of it. All my specimens are in excellent condition. If a few days elapse before any box is returned, I hope it will not be laid to the score of "acquisitiveness," but to the circumstance that I have other occupations.—W. A. LEWIS, 4, Crown Office Row, Temple, E.C.

Exchange Lists are inserted free.

I shall be glad to send a printed list of the British species of *Homalota*, according to my revision of that genus, to any one who will enclose stamped envelope.—D. SHARP, Eccles, Thornhill, Dumfries.

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THE
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MONTHLY MAGAZINE.

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H. G. KNAGGS, M.D., F.L.S. E. C. RYE.

R. M'LACHLAN, F.L.S. H. T. STANTON, F.R.S.

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Head whitish, the vertex flattened, and almost entirely occupied by the large black spots which are scarcely separated by a narrow median line; a black line at the base of the antennæ; front with three transverse black lines, one broad and angulated in the middle, below the antennæ, a second on the clypeus, and the third occupying the labrum. *Palpi* slightly fuscous. *Antennæ* black, narrowly annulated with whitish; the basal joint short, blackish above, whitish beneath. *Prothorax* broader than the head, whitish with black hairs, the anterior margin narrowly black, and with irregular black spots on the sides. *Meso- and meta-thorax* strongly suffused with blackish, the scutellum of each pale. *Abdomen* blackish (colours probably changed in drying). *Legs* whitish, longly ciliated; a blackish spot externally near the apex of the femora; *tibiæ* with two blackish rings, one near the base, the other near the apex; *claws* very short, simple, curved.

Wings narrow, hyaline; sub-costa and radius whitish with black lines, the rest of the veins and veinlets black, with occasionally a pale median space: anterior wings with eight transverse veinlets between the radius and its sector; four areoles between the two gradate series; the dividing veinlet of the third cubital cellule equal with, or scarcely exceeding, the transverse veinlet above it.

I have one example of this peculiar species collected by Mr. T. V. Wollaston in Antonio, one of the Cape Verde Islands.

NOTHOCHRYSA EVANESCENS, *n. sp.*

N. pallide albida. *Antennæ* griseæ, articulis duobus basalibus pallidis. *Pronotum* utrinque linea irregulari fusca signatum. *Alæ* hyalinae, latae; pterostigmate elongato, pallide flavesciente: anticae venis longitudinalibus pallidis; venulis costalibus fere totis, venulis gradatis, necnon venulis inter radium et sectorem, furcularum marginalium axillis sectorisque dimidio apicali, nigris: posticae venulis gradatis, furculis marginalibus, sectorisque dimidio apicali, nigris. *Long corp.* 6''' ; *exp. alar* 23½'''.

Hab. Sarawak in insula Borneo. *In Mus. Brit.*

Totally very pale whitish with a tinge of yellow. *Antennæ* grey, except the two basal joints. *Pronotum* with an irregular fuscous line on each side. *Claws* slightly dilated at the base.

Wings broad, hyaline, iridescent; pterostigma elongate, very pale yellowish, with a small blackish dot at the inner end: anterior wings with the longitudinal veins pale yellowish; costal veinlets (except in the pterostigmatical region) black with a pale space in their lower half; the apical half of the sector, the gradate veinlets, those between the sector and radius, and the basal portion of the marginal forks, also black; sector emitting 22 branches; dorsal marginal veins simple up to between the gradate series, afterwards simply furcate: posterior wings with all the veins and veinlets pale, excepting the apical half of the sector, the gradate veinlets, and the marginal forks, which are black.

One example in the collection of the British Museum, presented by Mr. Saunders; collected by Mr. A. R. Wallace, at Sarawak.

NOTHOCHRYSA FERRUGINEA, *n. sp.*

N. rufescens. Caput nitidum, rufo-aurantiacum; antennæ nigro-fuscae, articulis duobus basalibus rufescentibus. Pronotum rufo-aurantiacum, maculis quatuor nigris signatum. Pedes flavescentes, geniculis nigro-punctatis. Abdomen ochraceum, suprâ nigro-maculatum. Alæ hyalinae; pterostigmate elongato, rufo-ochraceo: antice venis longitudinalibus pallide flavis; venulis costalibus plerumque, gradatis, cubitalibus, nonnullisque inter radium et sectorem, nigris; postice venulis costalibus venulisque inter sectorem et radium in parte, gradatisque omnino, nigris. Long. corp. 5''; exp. alar 18''.

Hab. Sarawak in insula Borneo. In Mus. Brit.

Reddish. Head reddish-orange, polished; eyes bluish-grey; antennæ blackish-fuscous, the two basal joints reddish-orange. Prothorax transverse, above with a longitudinal impressed line in the middle, anterior angles oblique, four large black spots, one at each angle. Mesothorax above with a narrow black line on each side in the front, above, following the course of the anterior sutures. Legs pale yellowish with a black mark at the knees; claws dilated at the base. Abdomen ochreous, spotted with black above.

Wings hyaline, highly iridescent; pterostigma elongate, slightly reddish: anterior wings with all the longitudinal veins pale yellow; costal veinlets (except those near the pterostigma), gradate veinlets, inter-cubital veinlets, entirely, and those between the radius and sector at the two ends, black; sector emitting 18 branches; dorsal marginal veinlets simple as far as the inner gradate series, afterwards simply furcate; a black dot at the extreme base of the radius in each wing: posterior wings with the costal veinlets at the base, gradate veinlets wholly, and those between the sector and radius at the base, black.

One example in the collection of the British Museum, presented by Mr. Saunders; taken by Mr. A. R. Wallace, at Sarawak.

Notes on species described by Mr. F. Walker in the Trans. Ent. Soc., Lond., vol. v. (new series), part 5, p. 182-186.

Genus VARNIA, Walker = ITHONE, Newman. *V. perlroides* is an interesting second species of this curious genus.

Osmylus punctipennis, Walker, may be retained in the genus for the present, but is aberrant; *area costali seriebus* 5—2 *areolarum*.

Chrysopa ignobilis, Walker—a true *Chrysopa*.

C. pubicosta, Walker, belongs to *Osmylus* as a slightly aberrant form.

C. mozambica, Walker = *Nothochrysa variegata*, Burm., with which *N. rufostigma*, McLach. (Journ. Linn. Soc. Zool. vol. ix, p. 253), is also identical. The native country of the allied *N. æqualis*, Walker, is India and Malacca.

Apochrysa beata, Walker, is allied to *A. marionella*, Guérin, but is smaller, and without the dark cloud in the fore-wings.

Drepanepteryx falculoides, Walker, is closely allied to *D. phalænoides*, but distinct.

Hemerobius decisis, Walker, might be placed provisionally in *Megalomus*; but it will form a distinct genus, which I propose to call NEUBONEMA, of which I will say more hereafter, giving here the following preliminary diagnosis:—*Alæ anticæ sectoribus (in N. deciso) tredecim, quorum sex e radio emittuntur, reliqui ex uno illo parallelo.*

H. setulosus, Walker, is a true *Megalomus*.

H. tasmanicæ, Walker, is a *Micromus*; I have seen it from several parts of New Holland, and possess two individuals from New Zealand, which differ only in the rather greater amount of spotting on the veins, and with these more strongly ciliated; a comparison of an extensive series from both quarters will be requisite to prove the identity or distinctness of the two forms.

Lewisham, May, 1869.

DIAGNOSES OF THREE NEW SPECIES OF CALOPTERYGINA.

BY R. McLACHLAN, F.L.S.

As Baron de Selys-Longchamps is about to publish a second additional Synopsis of the Dragon-flies belonging to this family, I take the opportunity of diagnosing three beautiful undescribed species from my own collection, as under:—

SAPHO ORICHALCEA, n. sp.

S. viridis, metallica, infra (cum pedibus) nigra. Alæ latæ, ad apicem rotundatæ; posticæ (præcipue in maris) valde dilatatæ: in ♂ adulto nigrae, opacæ, orichalceo-micantes, nigro-venosæ, venâ costali viridi, metallicâ; pterostigmate nigro: in ♂ immaturo fuliginoso-sub-hyalinæ, orichalceo-micantes; pterostigmate flavo: ♀, sub-hyalinæ, flavo-brunneo-tinctæ; fasciâ medianâ, cuneiformi, paullo curvatâ, flavescenti, vel (immaturâ) albidâ; pterostigmate flavo, nigro-circumcincto.

Long. abdom. ♂ 24". ♀ 22"; exp. alar. ♂ 41", ♀ 37",

Hab. Africa occidentali (et Madagascar?).

Remarkable for the very broad wings, and for the transverse fascia of all the wings in the ♀, which is placed immediately after the nodus, and is broadest on the costa. I have not seen an example with the abdomen in good condition. In my own collection from Fernand Vas, West Africa, almost on the equator; in De Selys' collection from Old Calabar; and in that of the British Museum (a pair from Mr. Saunders) labelled "Madagascar," but this locality seems very doubtful. The

wings of the adult male show traces of small, irregular, whitish dots, as is frequently the case in black species of this family, and which seem to result from non-development of the black pigment.

THORE VICTORIA, n. sp.

T. nigra, thorace utrinque flavo-quinquelineato. Alæ flavo-albidæ, ad apicem late (intus concaviter) chalybeo-nigræ, anticæ strigæ obliquâ medianâ brunneâ; posticæ fasciâ medianâ brunneâ: pterostigmate dilatato, nigricante (♂). Long. abdom. 25"; exp. alar. 46".

Hab. Bolivia.

Differs from all other species in its great size, by the black apical third of the wings being regularly concave internally, and by the brown transverse median fascia of the hind-wings. I possess one male of this magnificent species.

THORE BEATA, n. sp.

T. nigra, thorace flavo-quinquelineato, infra griseo-albido. Caput flavo-maculatum. Pedes nigri; femoribus intus ad basin brunneis. Abdomen utrinque ad basin flavo-lineatum. Alæ hyalinæ, viæ (adulti) fuscæ, nigro-venosæ: posticæ maris (adulti) fasciâ latâ ante medium opacâ, lacteo-flavâ, vel (immaturi) lacteâ; foeminæ (adultæ) fasciâ medianâ angustâ, flavâ, opacâ, extus fusco-limbata, vel (immaturæ) lacteâ: pterostigmate nigro vel nigro-fusco.

Long. abdom. ♂ 17-18", ♀ 15-16"; exp. alar. ♂ 29-31", ♀ 29-32".

Hab. Pebas.

Remarkable for its small size, and for its hyaline anterior wings, and the opaque transverse whitish fascia of the inferior wings. I have seen many examples, collected by Mr. J. Hauxwell, at Pebas, on the Upper Amazons.

Lewisham, London, 13th June, 1869.

DESCRIPTION OF A FINE NEW CHARAXES FROM AFRICA.

BY ARTHUR GARDINER BUTLER, F.L.S.

The following species is from the collection of T. P. Dossetor, Esq., and forms part of a set of West African insects which the late Mr. Edward Doubleday, some years since, was very anxious to procure for the National Collection.

CHARAXES ZELICA, n. sp.

♂ Wings above blue-black with the fringe orange, the basal area shot with dark blue-green.

Front-wings traversed beyond the middle by a series of six small blue spots, the third to fifth lunular, the others sub-ovate; a sub-costal spot of the same colour between them and the apex.

Hind-wings with an oblique discal series of seven blue spots, tapering from the apex to the anal angle; eight sub-marginal white points delicately encircled by blue scales and seven linear marginal striæ; abdominal margin and body brown, coarsely clothed with hair.

Wings below silky olivaceous, the apical area inclining to ochraceous, and sharply defined by a curved line running from the anal angle of the hind- to the apex of the front-wings; the basal area crossed by two irregular silvery bands, terminating in the front-wings in two ochraceous spots; the interior band limited outwardly, and the exterior one inwardly, by a black and white line.

Front-wings with a pale undulated line upon apical area, two black ocellate spots with white irides near the base, and a black stria at the end of the cell.

Hind-wings with a large sub-anal silver patch and eight white sub-marginal spots, the three nearest the anal angle pupillated with black; body brown, the centre of the thorax, palpi, tibiæ, and tarsi ochraceous. Expanse of wings $3\frac{1}{4}$ inches.

Inhabits West Africa (Ashanti?).

This beautiful species, which I hope shortly to be able to figure, is allied to *Tiridates* and *Mycerina*, the coloration of the upper surface being somewhat similar to the former, the shape of the wings and underside colouring more nearly approaching the latter species.

British Museum: 5th May, 1869.

NOTE ON THE ŒCONOMY OF *NEMATUS SALICETI*, FALLÉN.

BY ALBERT MÜLLER.

In the beginning of August, 1868, I collected in this neighbourhood a quantity of the common elongated spongy galls, belonging to this species. They occurred on a willow (*Salix fragilis*?), on which it would have been difficult to point out a leaf not beset with two or more specimens; in fact, many leaves were crowded to excess, and presented the appearance of two rows of red rugose beans, but the midrib of the leaves was free throughout.

The larvæ were full-fed about the 8th of August. Unlike other gall-feeders of the genus, they had not eaten the galls to a clean thin shell, but left a rather thick fleshy covering intact, through which they gnawed a round hole and dropped to the ground, leaving their late

tenements full of "frass." I handled sundry specimens of this larva before they were full-fed, and noticed no particular odour; but when I happened to take up with my finger a full-fed larva, which I had watched tumbling down, I immediately dropped it in disgust, as a most unpleasant odour, similar to that of *Acanthia lectularia*, struck my olfactory nerves.*

The larvæ now bury about an inch under ground, and pass their metamorphosis there in a spun stout cocoon of brown silk (not mixed with any earthy particles), and of about the size of a grain of wheat. Many of the cocoons having been attached to small pebbles, presented, after removal, one or more flattened sides. When the cocoon is finished, the larvæ have completely lost the offensive odour they previously possessed; I repeatedly made sure of this by turning larvæ out of their cocoons and purposely irritating them; and at the risk of being denounced as "dealing with hypotheses," I am tempted to conclude that this odour is given to them as a safeguard during that short but most critical moment of their lives, when neither the shell of the gall nor mother Earth can protect them against their enemies.

The imagos made their appearance between the 13th and 15th October of the same year. On the evening of the last-named day, at a quarter-past six, I began to watch one of the cocoons, which, by sundry slight movements, had given me warning of some impending change. I had previously taken the precaution of placing several cocoons upon a highly-polished glass. A few minutes afterwards the antennæ of the insect were gently pushed through a very narrow slit at the upper end of the cocoon, and, with a tremulous motion, they seemed to explore the surrounding spot; five minutes later a part of the forehead made its appearance, and I could now see how the little busy jaws worked their way along the slit mentioned, gradually widening it, until the top of the cocoon, shaped like a skull-cap, was nearly detached. The insect directly pushed this easily aside, rapidly walking out of the cocoon, and now busily cleaning its antennæ by moving the fore-feet over them, and subjecting the wings to the same process with the hind legs. It took to flight immediately afterwards, and must have attained to full ma-

* Other accounts of this faculty being possessed by larvæ of saw-flies are on record: see, for instance, Westwood, Introduction to Mod. Class. of Insects, vol. ii, p. 104. Some species, as is well known, have the power of discharging an oily liquid, others are covered with a slimy substance, &c. These various protective properties may possibly, to some extent, account for the *Tenthredinidæ* being almost the only group amongst Hymenopterous larvæ, of which many species parade with ornamented skins in various lively colours, for it seems evident that a group thus rendered distasteful by various attributes has a far greater chance of holding its own in Nature than others. This "survival of the fittest" seems to have been conducive to two distinct results: a strong increase of numbers, both of species and individuals, and an assuming of a more or less gay livery in that stage of development, which generally lasts the longest—i.e., the larval state. The internal feeders of the group have only had the advantage of numerical increase, whilst the species living exposed on various plants have profited by the influence of light besides; hence the former all show dull colours, and present a marked contrast in this respect to the external feeders.—A. M.

turity within the cocoon, as I could perceive no change whatever in its hue from the time of extrusion until its death, which took place on the 21st of October. None of its companions lived longer than eight days after leaving the cocoon, but, as I did not know what to feed them with, it is possible that, in their free state, these insects may have a longer existence.

Penge, S.E., 30th May, 1869.

[I am rather inclined to think that the appearance of the perfect saw-flies in October was exeptional, and that their development was accelerated by the great heat of last season. This seems the more probable because the willow being deciduous, any eggs laid in the leaves late in the autumn would perish with them, before allowing time for their hatching, or for the larvæ becoming full-fed.

I have come across a curious mistake in one of the old authors, reminding one of the frequency with which the parasitic *Callimome* has, of late, been mistaken for the long desiderated male of *Cynips*. In Frisch's "Insecten Teutschlands" (1721), Theil 2, p. 22, is a chapter on this *Nematus*—"Von der Schlupf-wespe in der Weiden-Knoten"—in which the gall and habits of the larvæ are correctly described, but the notice of the perfect insect refers to a parasitic ichneumon; and on Tab. iv, the gall is figured with male and female parasites instead of saw-flies. Nearly a century and a-half has elapsed since Frisch wrote, and still we find similar mistakes in vogue.—R. McLACHLAN.]

Note on Tipula flavolineata and Ctenophora atrata.—I found the larvæ of *Tipula flavolineata*, Mg., last winter abundantly in rotten birch stumps, and more sparingly in rotten beech and furze; with them were several of *Ctenophora atrata*, L., which I did not, however, distinguish at the time, this species has since occurred abundantly at rotten alder stumps. I am indebted to Mr. Verrall for the names of these insects, and for the information that a light variety of the male of *atrata* equally common with the black form appears to be the insect described as *Ctenophora fuciformis*, M. The *Ctenophoræ* emerge from the pupæ in the burrows in the wood in which the pupæ lie, the perfect insect afterwards making their way out. The *Tipulæ* pupæ, which can run rapidly up and down their burrows, on the other hand, come out of the wood as the *Sesiidæ* do, or as the ground-living *Tipulæ* come out of the earth, retaining a support by two or three terminal segments. With only one or two exceptions, they emerged between 7 and 9 p.m., and on several occasions I had the pleasure of observing the process. The pupa-case bursts over the back of the thorax and the thorax of the imago rapidly emerges. The head with the antennæ and palpi are folded down in front, but rapidly assume their natural position. The basal portions of the legs and wings soon appear. The expansion of the wings looks as if it resulted from their being dragged out between the insect's

body and the margin of the pupa-case, between which they seem tightly held. The legs are placed side by side in front, the anterior pair occupying the central position, and the intermediate pair the external. As the insect continues to emerge by the vermicular movement of the abdomen, the legs, alternately, are drawn out short portions at a time by contractions at the trochanteric joints, and resemble the alternately moving rods of some complex pumping apparatus. Their length seems to be gained by expansion during emergence, similarly to the wings. In about twelve minutes the tips of the wings are drawn free of the pupa-case and lie flat one over the other behind the insect, a position they never afterwards assume: they are a little limp, but fully expanded. The legs are still tightly stretched downwards in front of the abdomen, and have only emerged for about half their length. The abdomen is distended into a wide, uniformly cylindrical tube, as large and nearly as colourless as the larva, and decidedly larger than the whole pupa; its first three segments are inflated with air, their walls are such delicate membranes as to make one doubt their capacity organically to connect the extremities of the insect; in the transparent posterior of the wall, however, the dorsal vessel can, with a lens, be seen actively pulsating. The next three segments seem equally filmy as regards their walls, but contain a straw-colored fluid, which is in the same cavity with the air above it. The posterior segments are still in the pupa-case. The legs continue to be alternately pulled by their trochanteric joints and seem to be freed by the continuance of the vermicular movement of the abdomen, which does not, however, progress any further out of the pupa-case. As the legs slowly come out, the knee joints now bend and leave their position close to the body, the anterior legs bend forward, the posterior at first laterally, and finally almost directly backwards, the others occupying an intermediate position; the femora being already sufficiently firm to communicate the extracting force to the lower part of the legs in a direction transverse to their length. As they rise simultaneously and are always at a uniform level, the creature presents a curious umbrella-like aspect, the femora projecting like the spokes of a wheel, and the long tibiae and tarsi bent downwards and converging to the front of the pupa-case. At the end of twenty minutes from the bursting of the pupa, the legs become free, all nearly at the same time, each as it does so, rising into a somewhat natural position. In a few seconds more, the animal regards its legs as perfect, and lays hold of the nearest object, the fluid mentioned above is discharged into the pupa-case, the air above occupying its place, the abdomen partially collapses and easily leaves the pupa, the insect crawls to a convenient place of rest, and is able, if disturbed, to buzz along the ground. More fluid is afterwards discharged, and the air must be rapidly absorbed, as, at the end of an hour, the abdomen has nearly its mature colour and form, and the *Tipula* is ready for flight.—T. ALGERNON CHAPMAN, M.D., Abergavenny, June, 1869.

Notes on Curculionidæ—Poëphagus nasturtii.—This species, though so rare near London, is not likely to be scarce where its food-plant is allowed to grow undisturbed. Besides two places within a few miles of my residence in East Kent, I have met with it lately near New Quay, on the north coast of Cornwall, where the water-cress grows luxuriantly in the streams near the sea. Collectors should treat the cress with some degree of tenderness, for, if injured, it does not always recover

itself, and is apt to be overrun and destroyed by its stronger neighbours, such as water-celery, or even stinging-nettles. One locality in this neighbourhood has been quite destroyed in this way: and in another the cress, for want of care in weeding, is likely to be exterminated. *P. sisymbrii*, which usually accompanies its congener here, did not occur to me in Cornwall.

Gymnetron beccabungæ.—The typical form of this insect, with the elytra red (except the sutural region), also appears, but sparingly, near New Quay. The few specimens I could obtain are considerably smaller than the black examples met with in the East of England. They were swept off warm banks in meadows. *Barypithes sulcifrons* also occurred sparingly from nettles in the same locality.

Tropiphorus carinatus.—I succeeded, in April last, in finding as many as six examples of this scarce species within a few feet of each other. They were in excellent condition, having been bred in thick moss round the roots of the common gorse, in company with *Barynotus*, *Alophus*, *Cneorhinus*, *Cænopsis Waltoni*, and other common species. The rare *Pachyrhinus denticollis* occurs also in similar situations.

Ceuthorhynchus suturellus (?).—There can be no reasonable doubt that *Cardamine pratensis* is the food-plant of this species; as I have taken several examples during May last, all from that plant. The beetle appears to be generally but sparingly distributed in this neighbourhood, and is likely to have been taken in other parts of the country. It should be sought for while the *Cardamine* is in blossom, as the plant is apt to be choked and disappear amidst the after-growth of the surrounding herbage, and the insect is then very difficult to procure.—W. TYLDEN, Stanford, Hythe, Kent, June 7th, 1869.

Food-plant of Ceuthorhynchus viduatus.—It may not be uninteresting to British Coleopterists to know where to look for *Ceuthorhynchus viduatus*. I was aware that it had been found in sandy places, and once on a wall top; but did not, until August last, know what plant it frequented. While the *Cruciferae* furnish pabulum to many species of the genus, I found that, in Berwickshire at least, the insect in question is attached to a member of the *Labiatae*, viz., *Stachys arvensis*, or "Corn Woundwort."

Not having access to "The Entomologist" of 1841, or "The Zoologist" of 1844-5, in which the species is recorded as British, I do not know whether its English food-plant has been noted.

In a neighbouring bog I found at the same time one or two worn specimens of *Hydrochus brevis*, along with *Hygronoma dimidiata*, which latter has not, I think, been yet recorded as Scotch.—R. HISLOP, Blair Bank, Falkirk, 14th May, 1869.

Note on Saperda scalaris.—I have just bred two specimens of *Saperda scalaris* from pupæ found beneath the bark of Alder (*Alnus glutinosa*).—J. CHAPPELL, Boundary Lane, Greenheys, Manchester, 27th May, 1869.

Chrysopa vulgaris hibernating in a hornet's nest.—Last autumn Mr. Evans of Lesness Heath, Kent, obtained a very fine hornet's nest, out of which, this spring, emerged a number of living specimens of *Chrysopa vulgaris*, which had evidently chosen it as a comfortable hybernaculum. This nest was exhibited at a recent soirée of the West Kent Natural History Society, and some of its admirers, in the innocence of their hearts, imagined the *Chrysopæ* to be the architects!—R. McLACHLAN, Lewisham, 4th June, 1869.

Thripticus bellus; correction of an error.—In my notes on this species in last number (p. 2), an important omission occurred. Instead of “third and fourth longitudinal veins totally obliterated,” should be “third and fourth longitudinal veins almost perfectly parallel, *sixth* totally obliterated.”—G. H. VERRALL, Denmark Hill, London, 6th June, 1869.

On the Noctua extrema of Hübner.—Last summer when I met Dr. Staudinger in Vienna, he was on his way to Pesth, a locality I had some thoughts of visiting myself, but my friend, Dr. C. A. Dohrn, of Stettin, dissuaded me. Unfortunately, a Coleopterist is not a good guide for a Lepidopterist, and I found out afterwards I had made a great mistake in not going to Pesth, and have resolved to be wiser next time.

After Dr. Staudinger had been to Pesth, I saw him both at Prague on his way home and again at Dresden after he had reached home, and he was very full of what he had seen at Pesth—the National Museum there containing the original collections of Ochsenheimer and Treitschke. The former had been at first placed on the ground floor, with this unfortunate result that in 1838, on the occasion of an unusual flood, it was for *nearly two days under water*! However, Dr. Staudinger assured me there were many interesting things to be seen in both collections, and that he had made several notes with reference to the synonymy of some obscure species, and that he would shortly publish an article on the *extrema* of Hübner. This article, which I have been anxiously expecting for nearly a twelvemonth, has appeared in the first portion of the Stettin. Entomologische Zeitung for 1869, at p. 85 (though omitted in the list of contents of that number). As I apprehend this may interest many English readers, I append a translation of the article.

“*Tapinostola extrema*, Hb., fig 412.

“That we have had this somewhat puzzling species standing in our collections under another name had long been tolerably evident to me. Hübner’s figure 412 must, at any rate, have been made from an abnormal specimen, since a perfectly white *Noctua* with black cilia to the anterior wings has probably never been found. It was just possible that the English *Noctua Bondii* might be the true *extrema* of Hübner; since that species in the coloration and spots of the anterior wings agrees very fairly with Hübner’s figure, and sometimes shows even a dark shade before the cilia, which the colourer might by mistake have transferred to the pale cilia themselves. But since, according to Treitschke, v. ii., p. 315, Hübner’s *extrema* has lately been added to nearly all the larger collections from the neighbourhoods of the Rhine and the Main, and *Bondii* has hitherto only been taken in the South of England and on Mount Parnassus, it became highly improbable, independently of its slighter form, that it could be the *extrema* of Hübner. According to this statement made by Treitschke it was evident that this *extrema* must be a species occurring with us in Germany, and probably existing in our larger collections.

Now Guenée has in the 1st volume of his *Noctue* at p. 103, described a new species from England, which in my catalogue of 1861, at p. 46, I referred to *extrema*, Hb., but without assigning any reason for this step, nor at that time indeed could I have done so, so that the union of the two, especially considering Hübner’s fig. 412, must have appeared very venturesome. Guenée, in good truth, looking at Hübner’s figure, could not suspect in it his English species, and therefore described

it as new under the name "*concolor*." This English species, which, since the draining of the fens, where it formerly occurred, has not now for many years been met with in England, has now been found, as I learn on good authority, near Berlin, in Silesia, near Vienna, and in Hungary. There seems, therefore, no doubt that it frequents all similar marshy localities, consequently would be found at the Rhine, and the Main, whence Treitschke obtained it, unless there also the marshy ground has been drained.

Now what did I find in Treitschke's collection with the name *extrema*? Two indubitable specimens of *concolor*. In Ochsenheimer's collection were two old, bad specimens, the upper one being a ♂ *fulva*, Hb., the lower one, in very bad condition, seemed tolerably surely to be Guenée's *concolor*; the label written by Ochsenheimer himself, stands thus—

"*Fulva*, Hb. ♂
Extrema, Hb. ♀ "

This agrees precisely with what Ochsenheimer says in his vol. iv., p. 82, and which Treitschke vol. v., p. 313, takes for an error.

Treitschke hardly appears to have known the red form of *Tap. fluxa*, the *fulva* of Hübner, and it is quite a matter of indifference whether in Hübner's fig. 413 he sees a ♂ or a ♀, since to my fancy this figure is incorrect, and does not suit either for *fluxa* or *fulva*, of which last name Hübner has given an excellent representation at fig. 496.

Since amongst hundreds of *fluxa* and *fulva*, I never saw a specimen with perceptible reniform stigma, such as Hübner's fig. 413 decidedly shews, I would rather consider it as a variety of a red *Hellmanni*, which always shews the reniform stigma, and which species is now found not uncommonly near Berlin, Brunswick, in Silesia, &c. Yet Hübner's figure is too bad to allow of our imposing his name *fluxa* on our present *Hellmanni*. But at all events, we may now without hesitation understand by the *extrema* of Hübner, the *concolor* of Guenée, a species which appears to vary very much, and probably only when worn or faded occurs as white, as Hübner's figure or Herrich-Schäffer's fig. 337, of which colour I have a wasted ♂. On the other hand, my ♀ which is quite fine is yellowish (bone-coloured) somewhat powdered with grey, just as Guenée describes it. As through the kindness of Mr. Henry Doubleday, I have also had typical specimens of *concolor* here for comparison, there can be no doubt about the identities of my species.

After I had written the above, my friend A. Rogenhofer, Custos of the Imperial Museum at Vienna, on the occasion of the Naturforscher Versammlung here, brought me the *extrema* from the Museum collection. This specimen came out of Mazzola's collection, and there seems no reason to doubt that it is the original specimen figured by Hübner (fig. 412). It is nearest to a whitish female *concolor*, Gn., but certainly with blackish cilia, almost precisely like Hübner's figure. My friend Rogenhofer had the notion that the creature whilst drying its wings, &c., came against some sooty object, and if I am not mistaken, Professor Zeller, who had previously examined the insect at Vienna, was of the same opinion. But under the microscope I could find no dark extraneous atoms (only dust) on the scales; indeed it rather appeared to me that a great many of the scales in the cilia and near the hind margin had naturally a dark edging.

Quite recently I obtained a ♂ *Notodonta bicolora*, of which the white of the

anterior wings was almost unclouded, but the posterior wings had the cilia and hind margin coloured blackish, which shows indubitably that this, though very rarely, may sometimes occur naturally in pale coloured insects. At any rate, this Hübnerian *extrema* should induce all young Lepidopterists to write in their copy books — IN CLOSELY ALLIED SPECIES, DON'T DESCRIBE OR FIGURE FROM A SOLITARY SPECIMEN."

With reference to the occasional blackening of white insects, I may mention that I have a fine male *Stilpnotia salicis* with the apical third of the costa of both anterior wings conspicuously black.—H. T. STAINTON, Mountsfield, Lewisham, June 15th, 1869.

Strange pupation of a larva of Pterophorus.—On the 6th of May Monsieur Millière sent me from Cannes a larva on *Andryala sinuata*; this is a composite plant, with the underside of the leaf clothed with fluffy down; the larva, which was that of a Plume, already noticed by M. Millière in his *Iconographie*, vol. i, p. 331, pl. 39, under the name of *Oxyptilus letus*, had already assumed the pupa-state before it reached me. But it had almost completely buried itself in the fluffy down on the underside of one or the leaves, and hence, instead of the pupa being fully exposed, as is usual with the Plume pupæ, whether they are naked like *fuscus* or hairy like *pentadactylus*, this was almost as well concealed as if it had been in a cocoon, only a portion of the head end and a little piece of one side being left exposed to view.—ID.

Strange pupation of the larva of Gelechia atrella, Haw.—In the *Entomologist's Annual* 1867, pp. 21—23, I gave a notice of the larva of this species which had been discovered by Mr. Jeffrey burrowing down the stems of *Hypericum*, causing the tops of the plants to droop.

In August, 1867, the Hon. Mr. De Grey sent me a box of insects to determine, amongst which I found a fine specimen of *Gelechia atrella*, so fine that I suspected that it must have been bred, and enquired the history of it.

The reply was, "*Gelechia atrella* I bred from a brown cocoon obtained by sweeping, in June, amongst grass in Buckinghamshire. There was much *Hypericum* in the place, and it may have been attached either to this or to the long grass. The cocoon was flexible and rather flat, and I much doubted if it were occupied until the insect emerged in a glass pill-box, where I had put it."

In May, this year, Mr. De Grey kindly gave me several stems of *Hypericum* tenanted by this singular larva, and as the plants began to wither before the larvæ were fed up, I had to supply them with fresh food, and to extract them from the old stems, a work attended with no little danger to the larvæ, as I believe I squashed three of them in the process; but I had at least three or four others alive and healthy, which I turned on to the fresh plants, into the stems of which they eventually bored, ejecting their "frass" either at the summit of the stem (where I had cut off the tops, thinking thereby to facilitate their entrance) or at the sides.

At the end of May I thought it time to examine these *Hypericum* stems, to see how the larvæ were getting on, and to my surprise I found two brown, flat cases, nearly half-an-inch long, evidently formed of a piece of *Hypericum* stem cut off by the larva, and no doubt intended as a puparium. It is difficult to give a good idea

of them: perhaps the best simile would be to say that they are not unlike the new-fashioned spectacle-cases, which are rather limp and open at both ends.

Certainly, if I had found one of these cases at large, I should have taken it for the case of an *Adela* or *Nemotois* larva. On writing to Mr. De Grey, to inform him of the singular product from his *Hypericum* larvæ, he reminded me of his own previous experience with the insect, intimating that the surprise I had then expressed—savouring, perhaps, a little of incredulity—had induced him to search for the larvæ this year in the same locality, and to hand them over to me.

I had entirely forgotten the circumstance till he thus recalled it to my memory, but on referring to his letter of October 2nd, 1867, I found the passage I have already quoted.

I hope my incredulity may always lead to such satisfactory results.—ID.

Notes on the earlier stages of Thecla rubi.—On June 25th, 1868, having business with a farmer at Haslemere, and not finding him at the house, I followed him to a secluded corner of his farm, to a piece of rough pasture sloping down to a little stream. While talking with him, I swept the net across some plants of *Genista tinctoria* which grew there in abundance, and to my great surprise found in it a green onisciform larva, which I at once concluded to be that of *Thecla rubi*. By diligent sweeping on that and subsequent days, my brother and I obtained some dozens of these larvæ, some nearly full grown, others quite small. In order to keep their food fresh as long as possible, I passed the ends of the stems of a bunch of *Genista* through the hole in the bottom of a large flower pot, and stood it over a vessel of water, covering the top with gauze, and here the larvæ fed up rapidly in the blossoms. After some days, the bunch of food being nearly stripped, I took it out to supply fresh, and then found that those larvæ which were full fed had nearly all forced their way into the thickest part of the bunch of stems and there lay without web or attachment of any kind; others had hidden at the bottom of the pot and were also perfectly loose. The next bunch of stems was used in the same way by the younger larvæ as they fed up, simply forcing themselves into the closest part.

They seemed very hardy, one or two when shrivelled and almost ready to become pupæ were accidentally dropped on the floor in removing their food, a mode of treatment that would be certain death to most larvæ, but they cast their skins as though nothing had happened, and became as perfect pupæ as the rest, and in that state appeared to be equally tough.

By July 10th, three dozen had assumed the pupa state, and I confidently expected an August brood, but to my great disappointment, not one appeared till this spring. Being kept indoors, however, they have been emerging almost daily since April 20th.

They emerge about 9 o'clock a.m., and when just out, before the wings spread, show no trace of the lovely green colour of the under-side, that part being golden brown like the upper-side; as the wings spread, the green appears. Probably this arises from the green scales being all edged with brown, and in the unexpanded state the edges alone being visible. This will account for the golden brown shade visible over the green in some positions.

The fact that the pupa is not attached or suspended in any way, either by the anal extremity or by a silken band round the middle like the other *Thecla* is very remarkable.

Probably its habit is to lie near or on the ground among the thickest grass and herbage.

I leave the description of the larvæ and green stumpy pupa to the practised pen of my friend, Mr. Buckler, to whom I had the pleasure of sending specimens. —CHARLES G. BARRETT, Norwich, 17th May, 1869.

Notes on the earlier stages of Thecla rubi.—The larva of this species had long been a desideratum to me, even after all the other British species of the genus, some of which are very much scarcer in the perfect state, had been duly figured. Perhaps the reason was that myself and friends tried to take it from the *bramble* only; but although diligent search was made for it on that plant in localities where the butterflies absolutely swarm, no one could find it for me; nor would butterflies shut up in a glass cylinder, with bramble buds and flowers, deposit their eggs on them. Doubtless the larva has been found on bramble buds, as Albin's account of it fully testifies, still I can now give two other food plants for it, which I cannot help fancying are more to its taste.

On 25th June, 1868, Mr. W. H. Harwood, of Colchester, who had made acquaintance with the larva during the previous year, kindly sent me some fine full-grown examples, beaten from broom. I lost not a moment in depicting them, and no sooner were they done, than on the following day I received others from Mr. C. G. Barrett, then at Haselmere, he having, quite by accident, discovered them on *Genista tinctoria*, and most fortunately he was able to send me four in different stages of growth. These from the *Genista* were not so brilliant in markings as those from broom, but otherwise identical; and from both sets of larvæ the perfect insects came forth from the 25th of April to 9th of May, 1869, very lovely specimens.

The full-grown larva is about $\frac{5}{8}$ -inch in length, and gains nearly $\frac{1}{8}$ -inch when stretched out in walking; thick in proportion and somewhat onisciform in shape, flattened beneath, the head very small and retractile, the second and third segments rounded above, the others to the tenth inclusive have a dorsal hollow with an eminence on each side of it, which slopes thence to the lateral ridge; the last three segments are rather flattened above.

The ground colour is a bright yellowish olive-green, the hollow of the back is a darker, full green, and down its centre runs the pale olive-green dorsal line, which gradually widens and suddenly contracts on each segment throughout its course, and becomes darker on the last three segments, and bordered there by a yellowish stripe on each side; from each eminence on the other segments a thick bright yellow streak slants backwards and downwards, bounded beneath by an equally thick streak of deep full green, most intense at its beginning on each segment; the lateral ridge has a stripe of yellow beginning at the third segment and running continuously round the anal extremity; parallel to this and above the spiracles is a faint indication of a stripe a little yellower than the ground colour; the head is pale brown with darker brown round the mouth; the appearance of the larva is velvety, caused by minute raised points bearing fine short bristles.

The larva when younger has the yellow markings less distinct, and in two of the examples found on the *Genista*, they scarcely appeared even to the last.

The larva enters the earth, but only just beneath the surface, to undergo its change.

The pupa is very short and thick, especially about the middle of the abdomen, rounded, and blunt at the anal tip; the wing-cases nowhere projecting, but smooth and large in proportion, and like the rest of the surface, unpolished; in colour, it is of a dark, dull, purplish-brown, and it is thick set with short dark brown bristles, excepting only the wing-covers which are blackish-brown and have no bristles. Its appearance would assimilate very well to pellets of earth.—WM. BUCKLER, Emsworth.

Irish Lepidoptera in April, 1869.—I spent the latter half of April with some old friends at Castle-Connell, near Limerick, when, although I had many other matters to occupy my time besides Entomology, I managed to spare a few days in the pursuit of my hobby. During the greater portion of my stay the weather was fine, but with cold or high winds, and every night, except two, when it rained heavily, the brilliancy of the moonlight precluded even the hope of successful sugaring, so that I did not even attempt this method of collecting. Larva hunting, too, was almost a total failure, and after the first two or three unsuccessful attempts at beating, I gave up the search in utter disgust. The 25th and 26th I devoted to the exploration of Cratloe Woods, net and beating stick in hand. These woods are about 400 acres or more in extent, lying nearly parallel to the Limerick and Ennis Railway, and are 10 miles by line from the former town, although not more than five as the crow flies. They are on the side and foot of a moderately steep and high hill, one of the lower range of the Clare mountains. The lower part, which is on the flat, is mostly Scotch fir and larch with a thick undergrowth of bramble, holly, hawthorn, &c.; higher up the hill side the fir gives place to oak, beech, birch, sallow, hornbeam, spruce, fir, &c., all becoming very stunted towards the top; the highest point being again larch. Above the wood for miles stretches the heath-clad mountain side, the highest points running into huge mounds of loose shingle and moss. All through the wood the whortleberry was in profuse blossom, and this and holly were the most noticeable features of the undergrowth, which, however, comprises a great number of other plants. It was terrible windy each day I went, to which, partially at least, may be ascribed my want of greater success, for looking at the great variety of vegetation, I cannot but think these woods only require systematic "working," to yield a much richer insect-fauna than the few common species named below would indicate.

On "taking stock" on my return to Limerick, I found I had captured or seen four species, viz.—*P. napi*, *A. cardamines*—common; *V. urticae*, *V. Io*.—both very abundant in all stages of disrepair; *S. Ægeria*—common; *S. Mægera*—only just coming out; *P. Argiolus*, during the two days I saw between 30 and 40, which, looking at the immense quantity of holly, I thought few, but doubtless many escaped my notice, owing to the height of the bushes, and density of the wood.

F. atomaria—on the heath the commonest species seen, except *A. cardamines* a few days later at Glenenomeragh; *P. petrarica*—3, one being crippled and turned

loose again. I see Mr. Birchall only records this species as Irish from Wicklow. *L. marginata*, *C. ferrugata*, *C. suffumata*, *P. gamma*—1 each.

The only other species seen during my stay at Castle Connell were, *M. subtristata*, at Glenenomeragh; *S. populi*, in pupa; *O. bidentata*, one pupa, since emerged; *B. quercus* or *callunæ*, still in pupa, and two other pupæ I do not recognise, and from which the imagos have not yet emerged. In the woods, too, I saw a few micros, but my indifferent eyesight quite precludes my attempting the capture of these beautiful atoms.—HERBERT MARSDEN, Secretary, Lepidopterists' Exchange Club, Gloucester, May 11th, 1869.

Great abundance of Vanessa cardui in 1868, &c.—Observing Mr. Bax's note on this subject, it occurs to me that some of your readers may be interested in one or two jottings of a similar kind.

I spent the month of August last at the delightful little watering-place of Bournemouth, Hants. Rambling one morning along the beach westward towards Poole, I was astonished to find *V. cardui*, in abundance, flying about in the hot sunshine, over a district covered with hills of blown sand, just adjoining Poole harbour. It would have been a comparatively easy task to capture fifty of these insects, most of them in fine condition; but being merely a collector and not a slaughterer, I took only the few that I required. I saw scarcely any other species of *Lepidoptera* at the same place and time; but *Megæra*, *Tithonus*, and *Semele* were very abundant in the neighbourhood of Bournemouth.

The locality is also rich in *Libellulidæ*.—W. H. GROSER, Vernon Cottage, Thornhill Road, N.

Note on the paucity of insects.—I am afraid we are to have a poor season; we have as yet found everything very scarce; even the commoner species have not "put in" at all in many cases. A friend and I were out last night for a walk in the rain, and found two dead *swallows* on the road. I opened one, and found scarcely a trace of food in it; shewing how scarce insects must be. I have no doubt many birds which depend upon them are dead.—T. J. CARRINGTON, Melbourne Terrace, York.

Deilephila lineata at Lewes—Yesterday morning I saw on the setting-board of a friend of mine in this town, two *D. lineata* (*livornica*), which had been brought to him within the last few days. One was caught in a greenhouse, and the other I believe, among trefoil or lucerne which was being thrown into a hay-loft. Their condition is fair, but not first-rate, and I think they are evidently hibernated.

Not having heard of this rare species being taken so early in the year before, I thought perhaps it might be worthy of a note in the Ent. Mo. Magazine.—J. H. A. JENNER, Lewes, May 27th, 1869.

Note on the black variety of Amphidasia betularia.—Last autumn, at the usual time, I found a very pale larva of *A. betularia*; it was almost fawn-coloured. On the 25th inst. it produced a fine female of the dark variety, known as *carbonaria*. This is passing strange—the larva wanting pigment, the moth having more than enough.—R. C. R. JORDAN, Edgbaston, Birmingham, 28th May, 1869.

Capture of Catoptria aspidiscana.—On the 15th inst., I took (in company with Mr. Gregson) a few fine specimens of *C. aspidiscana* flying in the hot sunshine. I had only one day fit for collecting, and am not likely to have more chances of finding the species this season, the weather having been too cold ever since.—J. B. HODGKINSON, Preston, May 29th, 1869.

Note on Scoparia ulmella.—Some years since, I took some *Eudoreæ* on elm-trees in Brockholes Wood, near here, and they agree with the figure of *ulmella* in the May number. Some I sent for names were returned as varieties of *delunella*. I don't know what became of them; however, I am now satisfied they were not *delunella* (*resinalis*), as that species has never been taken here. It is quite possible some of them may exist in some cabinets. It is fifteen years since I took them, and the trees have been cut down, but in July I intend to look again for the species.—ID.

Xylomyges conspicillaris at Worcester.—I met with a very fine female of this rarity on the 27th of last month. It was lying down upon the stone pavement at my back door. The cold weather no doubt retarded the appearance of this insect. There is no appearance of its having flown.—ABRAHAM EDMUNDS, Cemetery House, Astwood Road, Worcester, May 21st, 1869.

Captures of Xylomyges conspicillaris.—On April 26th I went, with two of my children, to a neighbouring wood, and in the course of an hour we took three *X. conspicillaris*—one a-piece, at rest on the trunks of young oaks. Went again the next day, but found nothing.—E. HORTON, Worcester, May, 1869.

New locality for Eupithecia lariciata.—A few days since I had the pleasure of taking a few good specimens of *E. lariciata* at Breadsall, near Derby.—GEO. BAKER, 147, Kedleston Street, Derby, 16th, June, 1869.

On the habits of the larva of Hepialus velleda.—This insect has been taken for several years in the neighbourhood of Congleton, and as very little, if anything, appears to be known about the larva (Mr. Buckler wanting it to figure), for some time past I have been on the look-out for it. I am now happy to say these efforts have been attended with success. On Monday last, June 7th, two fine ♂ specimens emerged from the pupæ. It continues two years in the larva state, feeds on the roots of the common fern (*Pteris aquilina*), and also on other roots, ceases feeding at the end of the second summer or the latter end of the year, hibernates without spinning a cocoon to remain during winter (like *hectus*); it does not feed again in the spring before changing, nor does it, as a rule (as far as experience goes), spin any cocoon; it continues in the pupa state about twenty-one days, when the moth appears.—JOSEPH STEELE, High Street, Congleton, June 9th, 1869.

Tinea pellionella feeding on cobwebs.—I forward specimens of what I take to be *T. pellionella*, which were fed on cobwebs. I used to see the larvæ crawling on the pantry ceiling last autumn, and took several: they appeared to be eating cobwebs when I first saw them, so I gave them nothing else. Poor Mr. Hopley felt much interest about them, hoping that they might prove to be *Kindermannia*.—N. J. DAVIDS, 14, South Bank, Regent's Park, June 15th, 1869.

Review.

"THE LEPIDOPTERIST'S REGISTER," by T. J. CARRINGTON. London: John Van Voorst.

This volume will be welcomed by all Lepidopterists who like to keep methodical memoranda of the histories connected with each species in their cabinets. It is compiled on the principle of "a place for everything, and everything in its place."

Obituary.

Mr. ABRAHAM EDMUNDS died at the Cemetery House, Astwood Road, Worcester, on the 3rd inst., at the age of 65. He was so well and so long known to all lovers of *Lepidoptera*, that his death will be felt by very many of the brotherhood as a blow and a warning. A man of a very strong constitution, he perhaps tried it too severely in the enthusiastic and unremitting pursuit of his favourite science. He leaves a widow, but no children. Fond as he was of Entomology, he never allowed his pleasure to interfere with his duty, for the conscientious discharge of which he was always much respected among his fellow citizens.

ENTOMOLOGICAL SOCIETY OF LONDON, 7th June, 1869. H. W. BATES, Esq., F.Z.S., President, in the Chair.

Mr. Stainton exhibited a Micro-Lepidopteron, the larva of which had been discovered by M. Millière, feeding upon *Osyris alba* at Cannes. For this insect, M. Millière proposed the name of *Paradoxus osyridellus*; it bore some resemblance to *Zelleria*, but with long tufted palpi, and, in repose, rested with its head applied to the surface, with the body elevated somewhat as in *Argyresthia*. He also exhibited drawings of the larva of *Gelechia atrella*, which inhabits the stems of *Hypericum*, and uses a piece of the stem as a case wherein to change to pupa.

Mr. Druce exhibited a collection of butterflies from Borneo, in which there was a fine new *Ornithoptera*, &c.

Mr. Smith exhibited a luminous larva, which he supposed to be that of a *Pyrophila*, from Uruguay; it exhibited ten bright green spots, and the head was intensely red, so that the luminous properties of the creature might be compared to railway signals. Also living examples of a brilliant species of *Cassidix* (*Physonota gigantea*), brought to Liverpool in log-wood from Central America.

Mr. Pascoe exhibited a remarkable beetle from Champion Bay, intermediate between *Hister* and *Claviger*.

Professor Westwood exhibited drawings of two new species of *Ectrepes*, which genus he referred to the *Ptinidæ*; and also new forms of *Paussus*, *Articerus*, &c.

Mr. Smith exhibited a bee (*Melecta*) captured the day previously at Southend, completely covered with the larvæ of *Meloe*, so that probably 300 or more of the parasites existed upon it.

Mr. Wallace read "Notes on Eastern Butterflies" (*continuation*).

Major Parry communicated "Observations on Lucanoid *Coleoptera* with a revised catalogue of the species."

Mr. Walker communicated "Notes on *Chalcididæ*, with description of a new species of *Megastigmus*."

Mr. Smith read "Descriptions of new species of the genus *Pison*, with a list of those previously described;" and "Descriptions of new genera and species of exotic *Hymenoptera*."

THREE LEPIDOPTEROLOGICAL EXCURSIONS NEAR MESERITZ, IN THE PRUSSIAN PROVINCE POSEN.

BY PROFESSOR P. C. ZELLER.

There are plenty of notices of excursions, but these generally relate to localities which were quite new to the relater, and therefore furnished him with extraordinary productions. If they relate to the neighbourhood of his own dwelling place they then record only that which is striking, and omit that which is usual. In neither case do such notices furnish a complete picture of the Lepidopterological Fauna. In a perfectly strange neighbourhood one certainly sees some of the species peculiar to it; but, as is well known, an investigation of a few days will not suffice to discover those which are most concealed and are often the most interesting. If one hesitates to introduce the products of one's own neighbourhood except in a systematic arrangement, the reason seems very natural that one fears otherwise to furnish much that is uninteresting. It is certain, that complete notices on the appearances at particular periods of the year, if they come frequently from localities situated near one another, and differing little in their character, would show great agreement, and would, therefore, be of little interest to the contributors. But it would be quite otherwise for the dwellers in localities of a different nature. For example, that which is the case around Meseritz and in a great part of Northern Germany, will scarcely be met with anywhere in England; it will, therefore, for an Englishman, have plenty of interest, to learn something more precise, and to be able to make comparisons with his own country, provided that he does not shut himself up too exclusively and insist on being blind to the products which do not occur in his own country! I give, therefore, in the following pages the results of a few excursions in former years, which I made to a precise locality, because I believe that a foreigner can thereby best make a conception of the nature of a part of this neighbourhood. Should these communications meet with approval, I will in future notice such parts of the neighbourhood of Meseritz as have different peculiarities.

I must, however, in the first place remark as follows:—the town of Meseritz lies in a fruitful, nearly elliptical valley, not quite in the middle. The river Obra intersects this valley in a very tortuous course, and passes northwards by the town; immediately below the town there runs into it an equally serpentine stream, the Packlitz.* This valley

* It was from this position between the two rivers that Meseritz received its Polish name, which, I have been informed, signifies Mesopotamia.

is encompassed with gently rising, low, sandy hills, generally clothed with firs (*Pinus sylvestris*). Four roads go from the town nearly to the four points of the compass.

That which goes towards the North passes first through a small suburb, then, for about ten minutes, through a fruitful tract producing wheat and other field-crops; then this begins to change for sand, and, after ten minutes, whilst ascending very gently, one is in the pure sand of this chain of little hills, the fir woods of which are, however, constantly being cut down to give place to rye, potato, and lupine fields. The hollows are all peaty and filled with marshes and lakes.

To the left of the road there rises first a gentle elevation of about thirty feet, which is used as a Jewish burying-place. This Judenberg clothed with fir trees is encompassed with a wall of sand at its base, within the boundary on the east and south side are some aspens, the only leaf-trees occurring on the hill, here, however, they are mingled with the fir trees. As no sheep may be pastured here (sheep are the veritable pests for the insects on sandy soils), the sand can much better develope its vegetation here than elsewhere, although it is indeed scanty enough. It consists of *Galium verum*, *Festuca ovina*, *Corynephorus canescens*, *Calamagrostis epigejos* (here and there plentiful, hence frequented by *Pamphila Actæon*), *Gnaphalium arenarium* (in profusion), *Potentilla incana*, *Artemisia campestris*, *Centaurea paniculata*, *Silene otites*, and, though rarely, *S. chlorantha*, a little *Astragalus arenarius*, *Thymus serpyllum*, and *Hieracium pilosella* in plenty, *Sedum acre*, a few plants of *Scabiosa columbaria*, a little *Saxifraga granulata*, and *Arundo phragmites* in the hollow, which contains a tank, and everywhere, especially in the driest places, lichens and mosses.

On the sunny slopes of the hills grows *Calluna vulgaris*, and between the ditches much *Calamagrostis epigejos* (the only locality for the larvæ of *Pamphila Actæon* and *Gelechia lutatella*), *Galium verum* (hence here *Botys flavalis* is very abundant), and *Veronica spicata*, and in the shade of the fir trees and the numerous juniper bushes *Anthericum ramosum*, *Scorzonera purpurea*, *Potentilla alba*, *Fragaria collina*, *Spiræa filipendula*, and *Trifolium montanum*. To the right of the road, behind some sand-fields, is a marshy meadow, plentifully grown over with species of *Carex* and *Salix repens*, the haunt of *Cænonympha Davus*. Beyond it, on the sands, are some young plantations of fir trees with similar vegetation as at the foot of the "Judenberg," and some lofty firs; then follows a great peat-moss, which has been principally obtained by means of a canal through which the water of one lake is

conducted into the Obra. The occasionally high banks of the canal are clothed on their slopes with an abundant grass-flora, but higher up are only the fir woods with their scanty vegetation.

THE 29TH OF MAY.

After a long period of very cold weather, which had totally destroyed the orchard crops and partially injured the rye, at last for a few days milder weather had set in. It had rained in the forenoon of this day and was warm; the sun, however, shone out before evening.

In order to collect *Gelechia superbella*, and the larvæ of *Setina Kuhlweinii*, and to see the oviposition of the *Lycænæ Hylas* and *Medon* (*Agestis*), which I wished to rear, I went at 3 p.m. to the Judenberg. As I did not stop on my way, I only saw, not far from the suburb, a *Lithostege farinata* (*niveata*) on the wing coming from the fields, and afterwards, on a field, another.

From the aspens of the Jews' burying-ground I beat a beautiful female *Cymatophora or*, and not unfrequently *Phoxopteryx harpana*, and from the aspen bushes a beautiful *Acidalia immutata* ♂.

In the open places which were more grown over with *Festuca* and *Corynephorus*, *Crambus chrysonuchellus* occurred in tolerable plenty, these were already accompanied by a few *C. pratellus*. Whilst I was seeking amongst the lichen (which covers the ground here and there like a grey efflorescence) for the larvæ of *Kuhlweinii*, there flew up at intervals a few bad *Gelechia psilella*, two *G. desertella*,* and a quite fresh *G. umbrosella*, Z.† I found by degrees 4 larvæ of *Kuhlweinii*, which sat partly concealed under a clod, and 4 larvæ of *Lithosia arideola* of medium size. To my surprise, 2 *Kuhlweinii* ♂ flew off from grass stems, certainly quite fresh out, but after such a long period of cold weather I had not expected them.

Whilst poking amongst *Thymus serpyllum*, I turned up by degrees 20 *Gelechia superbella*, their white heads at once striking the eye, with their antennæ obliquely directed upwards, they flew rapidly for a short distance and then settled again on the ground to take another hiding-

* By *desertella*, I understand those specimens which are so similar to *terrella* that they might readily pass for that species, but which are smaller, paler, and generally more sharply marked, and with us first make their appearance as early as the last third of May. The characters given by Stainton (*Insecta Britannica*, p. 113) are not always suitable; even the size is no constant character, and there remains hardly any other of tolerable certainty, except the earlier periods of appearance.—P. C. Z.

† This species, which is very abundant in June on sandy plains, and can be beaten out of juniper and other bushes, is not Frey's *Gelechia affinis* (*tegutella*), but has the opposite spots almost pure white; they vary in size and distinctness, and in many specimens, which I cannot separate as a distinct species, they are quite faint. My remark on *umbrosella* in the *Isis*, 1839, p. 201, that it differs from *coronitella* by its smallness, and by the shortness of the last joint of the palpi, is not sufficient to distinguish it. Stainton gives July as the period of appearance of the wings of *G. affinis*. The specimens taken at that time we cannot for the most part refer with complete certainty to *umbrosella*, because they are wasted. In no *umbrosella* do I see the pale yellow linear connection between the two black discoidal spots which the uninjured *tegutella* shows, but at most some whitish scales on the exterior side of the first spot.—P. C. Z.

place. As I had already, some years previously, found them at the same place, I had concluded that the larva must feed on *Thymus serpyllum*, but this very day this conjecture was to be annulled.

One *Æchmia equitella*, and one *Elachista Bedellella* also turned up in this place. On the slopes of the enclosure wall I collected a few larvæ of *Acidalia decorata* on *Thymus serpyllum* (which I succeeded in raising to the perfect state). On the wall there sat on a dry plant a creature which looked to me like a small wasp; as I wished to examine it more closely it flew off, but on account of the dull close weather, it flew badly and I easily caught it; it was a very beautiful ♂ *Sesia empiformis* (*tenthrediniformis*, Ochs.), which had evidently not long emerged from the *Euphorbia cyparissias*, which grows here rather freely. On *Silene otites* and *chlorantha* I found the cases of *Coleophora otitæ* of different sizes tolerably common (yet none were coloured like the figure in Stainton's Nat. Hist. Tineina IV. Pl. 2, f. 3,* but all like Herrich-Schäffer's figure 911), exclusively under the lowermost leaves of the plants, lying in the sand, many indeed a foot removed from the *Silene*, so that they appeared in their wanderings to have attacked other plants. The pale blotches with their round holes, on the lowermost leaves betrayed the plants on which I had to seek for them. It is probably only in captivity and when pinched for food that they climb higher up the plant. I found one case of *Coleophora vibicigerella* on a stem of *Artemisia campestris*. Here also flew two specimens of *Pterophorus serotinus*, thus at a time in striking contradiction to its name.

Thence I went over the height; without pausing there I saw *Phoxopterya unguicella* abundantly on *Calluna*, and a few *Cidaria ocellata* and *biriviata*, Borkh. (*alchemillata*, Tr.) From the twigs of the firs males of *Bupalus piniarius* were easily induced to fly.

Then I went to the right of the road towards the drainage canal, where I knew of a spot frequented by *Lycæna Medon*. There were certainly a few specimens of this butterfly, but on account of the cloudy sky they did not fly readily, but sat on the dry last year's stems of *Artemisia*, so that I failed in my object in respect to the ovipositing.

Of *Hylas* in this locality, I saw to-day no single specimen. One male of *Medon* was distinguished by its small size and by its underside. The transverse row of ocellated spots is placed so near the red fascia that on the anterior wings the innermost, and on the posterior wings,

* Only when I have had to feed the larvæ for a long while, before they were full fed, and gave them no sand, their cases obtain from the pieces of plant attached a rather greenish appearance; at large they are never like this.—P. C. Z.

the 3rd, 4th, and 6th, were quite confluent with the black bordering of it. This specimen consequently comes near to many specimens of *Agestis* var. *Salmacis* ♂, only, that on the upper side it has more red spots, and no white scales at all in the black transverse streak, the underside shews the pale grey ground colour of our spring generation.

In company with this species occurred a few specimens of *Polyommatus Dorilis* (*Circe* St.), so common with us. From the last year's stems of *Gnaphalium arenarium*, which grows here everywhere in plenty, I started up *Conchylis zebrana* not unfrequently; yet it was already late for it, and hence, most of the specimens were females and few of them in good order. On the this-year's leaves I observed the larvæ of *Bucculatrix gnaphaliella* plentifully; but I did not pause either for these, or to seek for the cases of *Coleophora gnaphalii* which are deeply concealed in the terminal shoots.*

Of *Clisiocampa castrensis* I still found everywhere nests on the most different low plants; in many the larvæ had already separated. *Botys sticticalis* was not scarce; one specimen I saw sucking from the blossom of *Senecio vernalis*, a plant which a few years ago had wandered hither from the East. *Ino Statice*s was already on the wing, thus at an unusually early period for our neighbourhood, and especially considering the recent inclement weather. *Gelechia diffinis* (*scabidella*, Z.) was already sparingly present, its food-plant growing abundantly on the margin of the canal. From the dry last-year's stems of *Artemisia campestris*, which here and there in the looser sand grows to very old plants, I started a female of *Grapholita incana*, a scarce species near *Meseritz*; I also obtained one ♀ of *Conchylis Richterana*. I also saw three *Fidonia fasciolaria* (*zebraria*, Tr.), (only one specimen of which was very fine), sitting on the upper part of the *Artemisia* stems, with their peculiar posture of the wings. On the margins of the ditches I took two specimens of the spring brood of *Lythria purpuraria*, one, however, already in very bad condition; besides these, one specimen of *Conchylis straminea* (*Tischerana*), and several *Elachista cygnipennella*.

Towards seven o'clock I lay down for a quarter of an hour at a spot where there was no *Thymus*, and found whilst poking amongst the grass and other plants, three specimens of *Gelechia superbella*, which renders my conjecture as to its food-plant one which is scarcely probable.

On an open place abundantly grown over with *Thymus*, in the fir-

* One obtains the imago of both species most easily by collecting the plant in quantitles and placing it in a roomy box; there then appear also various other species, viz., *Panc. pomposella*, *Sophronia humerella*, *Botys arealis*, *Thalpochara paula*.—P. C. Z.

plantation along the above mentioned *Carex*-marsh, *Pyrausta purpuralis* was not at all scarce, but it could hardly fly on account of the deficiency of sunshine. Only one bad female of *Ancylosis cinnamomella* occurred, and *Lycæna Hylas*, which probably sat concealed amongst the 'needles' of the fir-bushes, did not allow itself to be seen, as already mentioned. From a few old juniper bushes I beat out some *Argyresthia arceuthina*. From the tufts of *Festuca ovina* I started not unfrequently *Elachista dispiella*, and thereby became perplexed as to my previous suspicion that *Corynephorus* might be the food of its larva.

On a narrow fallow-field, between the plantation and the marshy-meadow, I obtained towards sunset a beautiful male of *Homæosoma nimbella*, and an equally beautiful ♂ *Conchylis posterana*, which, in its style of flight and its whitish appearance whilst on the wing, shews the greatest resemblance to *Conchylis zebrana*, and amongst several *Oxyptilus tristis*, which had evidently flown over from the adjoining spot carpeted with *Hieracium pilosella*, was a single *O. distans*, which was instantly recognisable by its size and dark colouring. I afterwards started from the edge of the ditch a *Platyptilus*, which appears very like *gonodactylus*, but is strikingly smaller, and therefore deserves a close examination, especially since I have found specimens precisely similar in other places.* I immediately suspected that there must be *Tussilago* in the neighbourhood, and truly found, on making a more accurate investigation, that a short distance from the spot were a few plants of *Tussilago farfara*, which had established itself here, and which had previously escaped my notice. From one bush of *Salix repens* I beat out after sunset several bad specimens of *Phoxopteryx inornatana*, H.S. As I returned along the side of the canal, I observed a male of *Hydrocampa lemnalis* flying briskly amongst the rushes.

THE 19TH OF JUNE.

The weather being dull and windy, but warm, I set off about 3 p.m. to collect more specimens of *Setina Kuhlweinii* and *Coleophora gnaphalii*. Along the road, and afterwards on a grassy place near the canal, rather shaded with aspen bushes, the males of *Epiniphele Janira* were flying tolerably common, this species was now just making its appearance. Further towards the "Judenberg," I found on a weedy border of the road some *Lycæna Icarus (Alexis)* and *Adonis* together, and at the edge of a lupine-field the *Lycæna Argus* ♂. On the eastern wall of the "Judenberg" (which to-day I did not visit) an *Agrotis subsequa*, S.V.

* In writing a notice, for the *Entomologische Zeitung*, of Wallengren's Treatise on the Swedish Pterophoridae and Alucitæ, I felt myself necessitated to treat of this doubtful new species in some detail under the name of *Platyptilus farfarellus*.—P. C. Z.

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J. CHAPPELL, from 8, Richmond Street, to Boundary Lane House, Boundary Lane, Greenheys, Manchester.

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Duplicates.—I have larvæ of *Smerinthus ocellatus* and *Liparis dispar* to exchange for other larvæ, or for well set imagos.—GEO. ELISHA, 2, Cross Street, Ashley Crescent, City Road, N.

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(*Orbona*, H.) buzzed from a tuft of grass and escaped me. From similar tufts I also started several *Gelechia terrella* and *psilella*. *Cænonympha Pamphilus* was everywhere in numbers, but was only to be started from its repose; only during a short gleam of sunshine was it voluntarily on the wing.

Behind the "Judenbergr" I started from the sheltered, dry, weedy side of the road four *Penthina rufana* (*rosetana*), and *Crambus pascuellus* and *dumetellus* in plenty; *Cr. cerussellus* seemed to be just making its appearance, and was therefore scarce; of *Crambus perlellus* I took here one male with the anterior wings quite unicolorous white. I found the larvæ of *Simyra nervosa* of various sizes, not uncommonly on their favourite food, *Chondrilla juncea*, also on *Rumex acetosella*, and two on *Euphorbia cyparissias*; the smallest ones turned out afterwards, without exception, to be ichneumonid. Here I started one ♂ *Erastria candidula*. On the green stems of *Artemisia campestris*, and also on the adjoining grass-stems, I found a few cases of *Coleophora vibicigerella*, which were probably mostly empty, as, whilst smoking amongst the bushes of the *Artemisia*, I started up several of the imago, of which, only the females were still in good condition. Of *Fidonia fasciolaria* (*zebraria*) I met with several specimens both good and bad.

In the fir plantation near the peat-marsh the collecting was bad, as it was too much exposed to the west wind, which rapidly carried away from me everything on the wing. On the bushes I took only one *Grapholita cosmophorana*. From *Thymus serpyllum* I started by degrees several specimens of *Pyrausta sanguinalis*, which, with the exception of a few specimens, were still fine. Under the juniper bushes and the branches of the fir bushes which rested on the ground, started out *Gelechia umbrosella* and *terrella*, probably mixed with other species; as it was still broad day-light, and I use no net for catching insects, the wind carried nearly all of them away from me, *Setina Kuhlweinii* ♂, generally in good condition, flew from the grass stems in open places, the only ♀ which I found on a small fir-bush was bad and good for nothing. On a similar small bush I found a pupa between the "needles," and on a grass stem I found a larva of this species. On old, isolated juniper bushes I obtained one *Hypsolophus marginellus*, and saw many of the webs of *Conchylis rutilana*. Here I also took a worn specimen of *Steganoptycha neglectana** of Duponchel, which had no

* This *neglectana* till quite lately, when in arranging my collection, I examined Heinemann's statements of the differences between *neglectana* and *deutana*, passed with me for one species with the last-named, and was called by me, and by Fischer von Rölerstein, *deutana*, Frölich. I find that Frölich's description causes some difficulties, which may perhaps have some influence on the name. The "*fascia lata nivea, quam sequitur fascia tenuis media subinterrupta fusca, pars postica iterum*"

doubt been blown by the wind from the aspens of the "Judenberg," probably at five minutes' distance: there it may be freely beaten from the aspen leaves, from which I have also bred it.

On the leaves of a sallow bush, near the canal, I took a beautiful ♂ of the rather scarce *Acidalia deversaria*, H. S., fig 305—308. On a grassy place, I started some *Anerastia lotella*, mostly already worn; I also saw a ♂ *Crambus lutellus* and took a *Sophronia parenthesella*. On dry sandy places, where *Hieracium pilosella* grows very abundantly, *Pterophorus tristis* was already mostly in bad condition, showing that the first brood was nearly at an end; the *Pterophorus obscurus*, which occurred singly amongst them, showed by their freshness that they certainly came out later than *P. tristis*.

I then went to the other side of the canal, which has quite the same soil and vegetation, in order to obtain some shelter from the wind behind the embankment of sand at the side. On this embankment, *Gnaphalium arenarium* and *Artemisia campestris* grow very plentifully; on the former plant flew *Botys ærealis* and *Thalpochares paula*. By the aid of my cigar smoke, I induced *Bucculatrix gnaphaliella* to come out in numbers; *Gelechia inopella* also flew out not unfrequently, yet already the specimens were mostly very bad, it was much more agile than the *Bucculatrix*, and was generally carried away by the wind. Some *Gelechia pictella* also turned up here, though there does not appear to be any *Cerastium* round about for the larvæ to feed on. Of *Stagmatophora pomposella*, which, viewed superficially, seems so similar to it, and which probably came from the *Gnaphalium*, I took one specimen. *Sophronia*

nivea," and "palpi albi," appear to me truly to refer to *neglectana* (Wilkinson, Heinemann). The "alæ basia" and the "fascia" designated as "fusca," which seems more applicable to Wilkinson's *dealbana*, may be of less importance; since Wilkinson also speaks only of "fascia basali mediaque cinereo-obscuris." Of much greater importance is Frölich's notice, "caput cinereum," since he describes much too inaccurately, and may by the "palpi albis" also have intended to designate the white colouring of the face. Probably he had confounded the two species, as so many Lepidopterists have since done!

The observations of Wilkinson and von Heinemann do not agree with my experience. *Neglectana* according to Heinemann should appear in July, *dealbana* from June to August. Of my 14 specimens of *neglectana*, 7 have the date attached, according to which I took them at the end of May and beginning of June; one ♀ from Reinerz, thus at a considerable height above the sea level, I took June 29. Of 30 specimens of *dealbana*, Wilkinson, unfortunately only 4 have labels; these, however, are all in the first ten days of July.

I have reared the species from Livonia; the two specimens in my collection from Tuscany are *neglectana* (Ent. Zeitung, 1849, S. 239, *dealbana* "at the beginning of May not scarce," which also agrees with my own experience).

I have reared the larva of this *neglectana*. I found it on aspen-twigs, which I had placed in water in the room, in March, when the leaves were coming out; it was in a bud, which was already drooping from the effects of the larva feeding. It was about six lines long, rather thick, flesh-coloured, rather inclining to dirty-yellowish. The head small, rather heart-shaped, with a faint depression above, shining black, thoracic shield transverse, broad in the middle, attenuated at the sides, shining black-brown with a fine pale longitudinal line in the middle. The spots are pale-brownish, two on each abdominal segment, near the dorsal vessel, the hinder one farther from it than the anterior one; above the similarly coloured spiracles are two perpendicularly one above the other, the upper one larger on the middle segments; beneath the spiracles is the "Wulstrand;" below which, perpendicularly beneath the spiracles, is another spot. The anal plate is shining brownish. The pectoral legs blackish. The hairs on the spots, which are imperceptible to the naked eye, are almost colourless. It crawled rather quickly along a smooth surface. When I had placed it again on a bud, it soon bored in between the leaf-scales and closed up the place with a slight white web. The imago appeared in the room in April.—P. C. Z.

humarella was not scarce. Of *Coleophora gnaphalii* I obtained to my regret only a few specimens, and those generally bad, although their development takes place very irregularly. Here were also some *Gelechia umbrosella* and beautiful specimens of *Gelechia distinctella*. I also saw *Pterophorus pilosellæ* for the first time this year. Fresh specimens of *Pterophorus pterodactylus* also occurred. The small plants of *Artemisia* were much injured by the larvæ of *Gelechia psilella*, which was now freely on the wing, but they all appear to recover afterwards. In the open places where *Thymus serpyllum* grows very abundantly and quite low I found only a few of *Gelechia artemisiella*, but more frequently *Acidalia decorata* and *Pempelia subornatella*. Of *Ocnerostoma piniariella* the white specimens of the second brood already occurred amongst the firsts, and I took a beautiful *Crambus pinetellus*. *Silene chlorantha* was very full of bloom. On many plants the radical leaves showed traces of *Coleophora otitæ*, which were, however, no longer there. Probably three *Coleophoræ* which were much worn, came from the same plant. I take them for *C. silenella*. As at seven o'clock the wind abated, there were plenty of insects to be caught; amongst them were females of *Bupalus piniarius*. Of the very beautiful *Coccyx pinicolana*, Dbd., I obtained only one specimen. *Batrachedra pinicolella*, *Cedestis farinatella*, and *Gysselinella*, and *Gelechia dodecella*, were plentiful. Of *Blastobasis phycidella*, I only took a single bad specimen. *Sciaphila Wahlbomiana* was abundant. Very annoying was the small white *Coniopteryx*, which flew by hundreds from the fir needles, and by its numbers prevented the observation of the Micro-Lepidoptera which flew out at the same time. On a mossy place, I took one *Butalis siccella*. The larvæ of *Olisiocampa castrensis* occurred everywhere; they were all full grown and sat on the weeds; most of them had probably spun up, and I found one cocoon amongst the leaves of an *Artemisia*. Where there was much *Rumex acetosella*, good and bad specimens of *Lythria purpuraria* were not scarce; one ♂ had even the dark coloration of the spring variety on the anterior wings. I found one full fed larva on the blossom of the *acetosella*.

About eight o'clock, when the best time for collecting had arrived, it began to rain heavily, and as the wind again rose, I was obliged to leave off my chase. Returning homewards, I saw in the canal many *Hydrocampa lemnalis*, which did not trouble themselves about the rain.

THE 11TH OF JULY.

It was rather a windy day, the sky was overcast, with occasional

gleams of sunshine. At half-past three p.m., I started for the "Juden-berg." On my way thither, I saw only *Vanessa urticæ* and *Pieris rapæ* on the wing. From the stems of the aspens I beat a worn *Gelechia nigra* (*cautella*, Z.), and not uncommonly *G. populella*; there were many other *Microptera* which flew off, but they soon got away from me, as I had merely the forceps, and it was such broad day-light. *Cænonympha Pamphilus* now showed itself everywhere, here in the dry places, where the larva feeds on *Corynephorus*, later in the peat meadows, and in other places richly decked with vegetation. *Pterophorus pilosellæ* was not scarce. I also took a bad specimen of *Pterophorus serotinus*, whence it would appear that the first brood was nearly ended. Among the aspen shrubs, a male of *Epinephile Tithonus* was flying, the first specimen of this species which I ever saw near Meseritz, and which must have come from a considerable distance, or I should certainly have discovered the species here before. *Nemotois minimellus*, which in former years I had found gregariously on the hill between the ditches amongst *Veronica spicata*,* had descended from the heights, and a few specimens were flying over the ground principally clothed with *Galium verum*. *Epinephile Lycaon* (*Eudora*), the larva of which feeds in the fir woods amongst the tufts of *Corynephorus* (from which I have bred it), flew in plenty along with *Hipparchia Semele*, and a few *Hipparchia Alcyone*. *Pamphila Actæon* flew quite with the style of *P. Thaumias* (*linea*) and *P. lineola* amongst *Calamagrostis*, and was not scarce. I also took a specimen already wasted of *Pamphila lineola* which had flown out from the corn fields, and a beautiful male of *Syrichthus carthami*.† A beautiful *Emydia cribrum* sat on a grass stem; the eggs which she laid before dying, fastened together as in *Setina Kuhlweinii*, I immediately turned out here to keep up the brood of this species, which, however, is not scarce with us. *Acidalia decorata*, when I came near it, flew up singly from the sand, when there was much *Thymus serpyllum*. *Setina Kuhlweinii* was easily induced to fly from the grass stems and other low plants, but generally soon sought another place of repose; some specimens were good and others bad. The females were, as usual, very difficult to find, as they sit near the ground and will not fly. From the fir bushes I still beat the form of *Sciaphila Wahlbomiana* which begins to fly as early as the middle of May. Around the branches buzzed a *Grapholitha*

* Hence here on quite a dry place, whereas at Glogau I only found it on moist peat-meadows especially amongst *Scabiosa succisa*.—P. C. Z.

† Of our white spotted *Syrichthi* with the margins entire, only *malgæ*, L. (*alveolus*, O.), appears in May; after it is over *carthami* comes out; and finally in August appears *Alveus*, H. (*frutulum*, O.): and each of these species is only single brooded.—P. C. Z.

coniferana. Amongst the *Gnaphalium*, *Sophronia humerella* was scarce and worn. *Thalpochares paula*, which readily flies and then settles again on a stem, was abundant.

I then went up under the tall fir trees in order to seek for the pupæ of *Gelechia lutatella* in the tubularly rolled leaves of *Calamagrostis epigejos*; as I however devoted little time to the search, it was unsuccessful. But many of the leaves showed unevenly eaten margins, an indication that they had been visited by the larvæ of *Pamphila Actæon*. From the fir trees I beat out a bad male of *Ellopiæ fasciaria*. On a solitary old stunted bush of *Sorbus aucuparia* were many leaves spun together in balls which were now empty, but which according to my previous experience had been tenanted by the larvæ of *Gelechia leucatella*. From the juniper bushes, *Cidaria bilineata* flew out singly. On a few plants of *Agrimonia Eupatoria*, I saw on many of the leaves brown swellings; they were empty, probably they had been the dwellings of some beetle-larva.

I now went to a sandy field by the road-side, which had not been sown for several years, and was well clothed with *Astragalus arenarius* and *Gnaphalium arenarium*. Here I hoped to find *Gelechia inustella*, but the hope proved vain, but from a few isolated small fir trees, which had been left in the middle of the field, I beat out a whole swarm of *Gelechia psilella*, many worn specimens of *G. umbrosella*, and a pale variety of *G. distinctella*. On the dry turfed margin of the road, where the larvæ of *Simyra nervosa* were now past, I found some *Lythria purpuraria* on the wing, and *Crambus alpinellus* was very abundant.

Whilst crossing the peat-meadow, I saw several *Cænonympha Davus* and *Crambus pascuellus* in multitudes. As the force of the wind prevented both collecting and observation, I sought the more sheltered parts of the fir plantation; but here it was so crowded with *Crambus alpinellus* that the observation of other species was rendered extremely difficult. Together with several ♂ of *Setina Kuhlweinii* I at last also found a female, but the margins of its wings were so tattered that I left it; it had probably been blown by the wind against the fir needles. I beat *Gelechia dodecella* out of the fir bushes. *Pterophorus pilosellæ* was not scarce, and on the old juniper bushes I took a few *Conchylis rutilana* (it occurs in great plenty amongst them).

Whilst resting on a dry sheltered slope, I observed on the sand amongst *Hieracium pilosella* several specimens of a delicate bug with inflated hoods (genus *Derephysia*), some of them *in copulâ*, and one specimen of the beetle *Sarrotrium muticum*. Two *Butalis siccella* hopped

out from the dry moss. I also found here the curious case-bearer, whose case consists of an old hollow piece of stem, in which it can turn round with the greatest ease, and use the hind end of its case as the front. As no *Calluna* grows here, the larva, if that be its principal food, must also eat other plants. In order to see to what kind of plant it would betake itself, I watched it whilst it was crawling about on the ground amongst the plants and their fragments; it moved with a hurried, tremulous, almost nervous motion of the thin anterior portion of the body. But it did not appear to be seeking any nourishment, so I could form no conclusion as to its food plant, and I allowed it to retain its liberty.

Before sunset it became calm, but cold; hence the *Lepidoptera* came out now readily, but flew dull and heavily. Not unfrequently *Nyctegretis achatinella* got up from amongst *Artemisia campestris*, but the specimens were bad; also from the same plant, beautiful specimens of *Conchylis Kindermanniana*, the ♀ of which flies as readily as the ♂. Amongst these were two beautiful males of the second brood of *Conchylis Richterana*. Specimens of *Coleophora vibicigerella* were wasted. Three plumes occurred here; *pilosellæ*—not uncommon; *tristis*—less frequently; and of *obscurus* only one specimen; they were easy to see and to catch in the twilight. Amongst several *Anerastia lotella* which started from the grass stems, one ♂ was still in good condition. I also found one worn female of *Melissoblaptus bipunctatus* low down amongst the *Artemisia*. Amongst the abundant *Gelechia terrella* on the slope of the canal, I took two *Gelechia lutatella*, which I recognised immediately by their whitish anterior legs. I sought for them here, as I knew the species occurred here, having previously observed the rolled leaf of the *Agropyrum repens* which grows in plenty at the spot. I also took here a good specimen of *Botys frumentalis*.

After the sun was gone down, the insect world appeared as though dead, and I had to beat about a good deal in order to induce anything to fly. *Crambus alpinellus*, however, along with two specimens of *Homœosoma nimbella*, without heeding the cold air, visited the blossoms of *Jasione montana*.

As I returned homewards along the dry grassy border of the road, where there were much *Achillea millefolium* and only a little *Artemisia*, there flew up in the dark two *Conchylis dipoltella*, which I had not before found near Meseritz; they had quite the flight and the appearance of *Conchylis Kindermanniana*, for which indeed I took the first specimen when on the wing.

DESCRIPTIONS OF NEW SPECIES OF DIURNAL LEPIDOPTERA.

BY ARTHUR GARDINER BUTLER, F.L.S.

GENUS AMATHUSIA.

1.—AMATHUSIA OTTOMANA, *sp. nov.*

Alæ suprà fuscæ, anticæ fasciâ disco-costali violaceâ; posticæ caudâ ocellatâ: subtus roseo-fuscæ, striis septem anticis, sexque posticis divergentibus, brunneis, ocellis duobus posticis permagnis, fusco-ochraceis.

Allied to *Amythaon*, but differs entirely in regard to the shape and position of the violet band of the front-wings, which begins on the costa, close to the base, continues beyond the end of the cell, then slopes obliquely towards but not reaching the outer margin, from which it turns off, tapering to just below the first median nervule; each wing being thus ornamented with a large violet crescent. The hind-wings are shot with violet. The under-surface of the wings is nearly the same as in *A. Amythaon*, but of a more pinky hue and with larger ocelli.

Inhabits Borneo (Sarawak, *Lowe*).

In the collection of Herbert Druce, Esq.

This does not agree with the descriptions of Felder's *A. Pylaon* or *Porthaon* from Java, his Indian species being probably the true ♂ *Amythaon* of Doubleday (but not of Westwood.) The figure in the "Oriental Entomology," represents a species with a much narrower and duller violet band on the front-wings, leaving a large brown space at the apex; the brushes on either side of the body seem also to be unusually developed. There can be little doubt that this is a distinct species, for which I propose the name of *A. Westwoodii*.

The type of the figure is said to be in the collection of H. G. Harrington, Esq.

I hope soon to be able to figure *A. Ottomana*, and the other species here described.

GENUS PAPILIO.

1.—PAPILIO KEROSA, *sp. nov.*

♂ *P. Paradoxæ affinis, Euplæam Amymonem simulat. Alæ suprà fuscæ, anticæ obscuriores, purpurascentes, punctis areæ apicalis pallidioribus: subtus fuscæ, punctis septem anticis, sex posticis, sub-marginalibus, albis: corpus nigro-fuscum, albo-punctatum.*

Wings above: brown, darker towards the base, the front-wings

beautifully shot with bright purple; a spot near the end of the cell and five ill-defined streaks terminating in whitish points upon the apical area, violet; body blackish-brown, the head and thorax speckled with black.

Wings below: paler brown, darker towards the base, with a series of seven white sub-marginal points in the front and six in the hind-wings; body black-brown, spotted with white; expanse of wings, 3" 8"

Inhabits Sarawak, *Lowe*. Coll. Druce.

P. Kerosa closely resembles *Euplæa Anymone*, of which it is probably an imitation.

2.—PAPILIO ZANOA, *sp. nov.*

♂. *Præcedenti affinis, Euplæam Callithöem simulat. Alæ suprâ fuscæ, areâ basali obscuriori; anticæ nitidè cærulescentes, puncto singulo discoideo punctisque discalibus quinque pallidè cæruleis, sub-marginalibus octo albis: posticæ punctis sex sub-marginalibus albis. Subtus pallidiores, punctis anticis octo, posticis septem (septimo punctulo minutissimo adjuncto) albis: corpus nigro-fuscum, albo-punctatum.*

Wings above: brown, darker towards the base, the front-wings brilliantly shot with blue, the front-wings with a spot near the end of the cell and five just beyond, pale blue; a series of eight sub-marginal spots decreasing in size towards the anal angle; the hind-wings with six white spots; the body blackish-brown, the head and thorax spotted with white.

Wings below: paler brown, the front-wings with eight and the hind-wings with seven sub-marginal white spots, a minute white point touching the seventh spot; the body blackish-brown, spotted with white; expanse of wings, 4" 2"

Inhabits Sarawak, *Lowe*. Coll. Druce.

We do not possess an *Euplæa* corresponding to this from Borneo; it is, however, exceedingly like *Euplæa Callithöe* from Northern India, and probably is an imitation of a Bornean form of that species.

3.—PAPILIO JUDA, *sp. nov.*

♂ ♀. *P. Paradoxæ Telesicloque affinis, Telearcho persimilis; minor autem, maculisque sex tantum in serie alarum anticarum discali cærulescentibus. Alæ posticæ maris punctis quinque sub-marginalibus albis, striis cæruleis inclusis,—feminae striis sex septemve nigris, maculis albis hastatis terminatis, subtus punctis minimè violascentibus, ornatæ. Corpus nigrum, albo-punctatum.*

Wings: brown, darker at base, the apical area in the male shot with blue; in the female with purple.

Male: front-wings with a large spot near end of cell, and series of six discal and eight sub-marginal spots, all, excepting the three nearest the apex, pale blue; hind-wings with five white points enclosed in blue hastate dashes near the apical margin. Wings below: brown, with eight white sub-marginal points in the front and seven in the hind-wings.

Female: basal area streaked with dusky whitish; front-wings with a sub-costal blue and a sub-terminal white spot within the cell, six hastate spots on the disc, blue, irrorated with white, and eight sub-marginal white spots; hind-wings with six to seven black streaks, terminating in arrow-headed white spots upon the inter-nervular folds; the fringe of all the wings varied with white. Wings below: brown, the blue spots replaced by whitish ones, the basal streaks more evident, otherwise as above; body blackish-brown, spotted with white; expanse of wings, ♂ 3" 11"; ♀ 4" 5"

Inhabits Sarawak, *Lowe*. Coll. *Druce*.

This species appears to be a local representative of *P. Telearchus* of Hewitson; like which, *Telesiclus* and *Paradoxa*, it closely resembles both sexes of *Euplœa Midamus*, Linn.

Zoological Department, British Museum,
July, 1869.

Capture in Devonshire of Hydroporus minutissimus, Germ., Aubé.—To re-introduce into the British list a species which has already been expunged is at all times a pleasure, but in the case of *Hydroporus minutissimus* it is peculiarly so to myself, since I was the person on whose authority it was originally admitted. Three examples, which were given to me many years ago by the late Mr. W. Clear, of Cork, and which he *believed* were taken by himself near that city, formed the basis for a short notice in the "Annals of Nat. Hist." (vol. xviii, p. 453, 1846), where I described them as the exponents of what I inadvertently conceived to be a new species, under the trivial name of *trifasciatus*. But subsequent enquiries left little doubt on my own mind that Mr. Clear's specimens were in reality Continental ones; and so, after remaining for some years in the catalogue amongst "uncertain natives of Britain," the species was altogether struck out, as having been admitted upon evidence which was manifestly insufficient. During a late excursion, however, to Slapton (about seven miles to the westward of Dartmouth), a single example of it was discovered by my wife, amongst the small submerged shingle at the edges of the Ley; and, being thus warned of its presence, we continued to search patiently until a tolerable series had been obtained. Its habits are precisely similar to what I have observed in the Canary Islands, and elsewhere,—the species delighting in shallow, clear water, amongst the shingle of which it principally resides.

I may add that the same locality produced many *Coleoptera* of tolerable rarity, amongst which *Homalota longula*, Heer (= *thinobioides*, Kraatz), was perhaps the most important. We likewise took sparingly *Scopæus Erichsoni* (= *lævigatus*, Wat. Cat.), *Apion confluens*, Kirby, and *Amalus scortillum*; as also, more plentifully, *Lionychus quadrillum* and *Dermestes undulatus*.—T. V. WOLLASTON, Teignmouth, June 30th, 1869.

Notes on Coleoptera at Folkestone.—Having spent the greater part of last June at Folkestone, a place so productive of good species to the Lepidopterist and Hymenopterist, I come to the conclusion, in spite of cold, windy, and rainy weather prevailing during the greater part of my stay, that it, and the district round it, is equally good for the Coleopterist. Had it not been for the bad weather I expect that many species then only occurring to me by single examples would have been more plentiful. Never having been to Folkestone before, and having no one to guide me, I unfortunately did not investigate the best part of the far-famed "Warren;" upon which (under stones) I could find nothing better than *Plinthus*, which was anything but plentiful, and very often broken. With it were *Myrmedonia limbata*, *Pterostichus ruficollis*, *Lebia chlorocephala*, *Xantholinus tricolor*, and such moderate things. The only other beetle worth naming was *Phytonomus trilineatus*, common on *Lotus*. Thanks to the kindness of the Rev. Mr. Tylden, I was enabled to find, near Westenhanger, *Bembidium Sturmi*, *Anchomenus livens*, and *Poöphagus nasturtii*, three species not falling to the lot of every one. *Ceuthorhynchus tarsalis* appeared to be as hard to get as ever. Walking many miles to find its favourite *Sisymbrium* (on which the to me hitherto rare var. *dispar* of *Telephorus lividus* was very abundant), and beating many pecks of that ungainly plant, I managed to secure a short row of the beetle for my cabinet, though it took eleven days hard work before I got the first specimen. It occurs in the immediate neighbourhood of Folkestone, and at Hythe, and I found one specimen at Saltwood Castle, on *Alliaria*, in company with *alliarie*, Bris. (*inornatus*, Wat.). On the *Sisymbrium*, *C. cyanipennis* was very plentiful, *C. constrictus* very rare, and *C. sulcicollis* and *quadridens* abundant. Of many other species of the genus, *chrysanthemi*, *melanostictus*, and *cochlearie* only are noteworthy. Of the allied *Ceuthorhynchideus*, *melanarius* (common on *Nasturtium*), *terminatus* and *frontalis* occurred; and I would here note my conviction that *Chevrolatii*—in vain sought by me, though I obtained *troglodytes* in every possible size, variety, and splendid condition,—is a good species. Remembering a former capture of *Ceuth. marginatus* with six-jointed funiculus, I took a large number of that somewhat abundant species, and had the satisfaction of finding four similar examples. There seemed to be no *punctiger* among them. I look upon these as monstrosities only, among which class must certainly be placed a *Rhynchites germanicus* which I took here, with each antenna bi-clavate.

In a pond at Hythe, I was fortunate enough to obtain a small row of *Telmatorhynchus sparganii*, certainly one of our rarest beetles; it was accompanied by *caricis* and *typhae*, and by two specimens of *brevicollis*, Aubé, a species new to me, and most distinct. A similar pond, near "Cæsar's Camp," at the base of the hills, covered with flags, reeds, water lilies, and other flowering aquatic plants, much

resorted to by *L. Adonis* at its shallow edges, and abounding with dragon-flies, produced (besides swarms of common *Telmatophili* and *Cercus rufilabris*), the magnificent *Chrysomela menthastri* in some numbers.

It was, however, by sweeping the boundary line between the waste and cultivated lands, on the slopes of the inland row of cliffs running from Folkestone Turnpike to Westenhanger, that I made most of my good captures. Here I once or twice found the giant *Molytes germanus* (also near Saltwood), and *Otiorhynchus tenebriosus*, the males of which much simulate the hitherto non-Britannic *fuscipes*; and here ♂ *Drilus* absolutely swarmed, exhibiting the greatest conceivable discrepancy in point of size. Of some hundreds that I saw, all were males; and the closest and most constant work (among snails, at evening and by day, by sweeping and other examination of the banks and plants whereon the male occurred), never produced a female. I imagine, however, that I was too soon; for, after my departure, Mr. Purday, of Folkestone, found a female, not accompanied by copulative ♂, in the middle of a path. This ♀ is now in my collection. General sweeping along these ridges produced many good things, amongst them being *Homalota notha* (a very *Encephalus* in its carriage), *H. scapularis* (not very uncommon), *Hypocyrtus seminulum*; *Hydnobius punctatissimus* (three of the very rare small testaceous but quite mature form), *Anisotoma litura* (pale form), rather commonly, and *calcarata* rarely; *Choleva anisotomoides*, *Saprinus virescens*, lurking in *Helianthemum*-flower, like *Cryptocephalus hypochæridis*, and evidently under that mild disguise voraciously intent; *Cryptophagus badius* and *setulosus*, *Antherophagus pallens* and *nigricornis*, *Malthodes atomus*, *Trachys troglodytes* (a very large dull-coloured specimen), *Mordellistena pumila* (extremely common, of all sizes), *M. pusilla* (equally excessively rare,—to be known from small *pumila* by its brown pubescence and longer antennal joints), and *M. abdominalis*; *Cæliodes exiguus* on *Geranium*, not uncommon, and generally distributed over the district; four species of *Bruchus*, whereof the best, *seminarius*, was very abundant; *Apion filirostre* (as usual, singly), *stolidum*, *Waltoni*, *punctigerum*, *pomonæ*, and many others, common; *Baridius picicornis*, a few, on *Reseda lutea*; *Gymnetron pascuorum* (absolutely swarming on Sandgate road cliffs), *G. melanarium* and *labile*, *Orchestes pratensis* and *Amalus scortillum*, common; *Rhamphus*, *Phytonomus pollux* and *suspiciosus*, and *Hylastes obscurus*; *Cryptocephalus lineola* and *bilineatus* rather rare; *labiatus*, *aureolus*, and *hypochæridis* most abundant (the latter easily to be known from equally small *aureolus* by its proportionately much shorter scutellum); *Cassida sanguinolenta* (rare), and *nobilis* (plentiful); *Platynaspis villosa* (rare), *Oömorphus*, *Scymnus* sp.—? (like small *Mulsanti*, with red bands almost making four spots); *Mantura Matthewsii*, generally distributed, *Aphthona hilaris*, green var., *Bryaxis Helferii*, and many other commoners.

I was much struck by the prevalence of dark forms; the black *Telephorus dispar* above alluded to and black *Isomira murina* being far commoner than the types; I also found one or two *Lema cyanella* nearly dull black, a black ♀ of *Baridius picicornis* in cop. with blue ♂, and three black *Rhyzobius litura*.

The above general notes (which do not by any means exhaust my captures), show, I think, that under better auspices, Folkestone is a good Coleopterous locality.—E. C. RYE, 7, Park Field, Putney, S.W., July, 1869.

Eros affinis bred.—After considerable trouble, I have succeeded in breeding *Eros affinis*, from small larvæ obtained at Killarney in 1866; and I have also bred it from Sherwood Forest larvæ, found last year. The larva resembles that of *E. Aurora*. I have also bred *Tiresias serra* from Sherwood.—J. KAY HARDY, 118, Embden Street, Hulme, Manchester, July, 1869.

Notes on Saperda scalaris and other Coleoptera at Sherwood Forest.—In June last I spent a fortnight at Sherwood, where, amongst other things, I found a single ♂ example of *Saperda scalaris* by beating an oak. I also brought home six pupæ, found in company under oak bark, one of which did not come to maturity, two turned out a fine pair of *S. scalaris*, and the remaining three were *Phymatodes variabilis*. From another pupa, found under rotten birch, I bred *Phlæotrya Stephensii*. In the Forest, at large, I found a few *Conopalpus testaceus* and var. *Vigorsii*; also *Cistela ceramoides*, *Eryx atra*, *Leptura scutellata*, &c. As far as I know, the oak is an unrecorded pabulum for *S. scalaris*.—J. KIDSON TAYLOR, Thorn Cottage, Longsight, Lime Grove, Manchester, July, 1868.

"*Fireflies in Kent.*"—Under this heading, in "The Times," of 17th inst., "A.A." records the capture, at Ashford, of a luminous specimen of *Lampyrus italica*, and particularly calls attention to its soft yellow light, so different to the cold blue gleam of the English Glow-worm. It is to be hoped that some further evidence will be forthcoming as to the identity of the species in question; though, after the occurrence of *Phosphænus* at Lewes, it will not be safe to treat the above record as a light matter.—EDS.*

Trichius fasciatus in South Wales.—It may be of interest to some of your readers to know that I have turned up this species in considerable numbers. I shall be glad to return specimens to anyone sending a box with return postage. It flies rapidly and deftly in the sunshine, hawking from flower to flower with considerable power of wing, and reminding one somewhat of *Sesia bombyliiformis*, though without the wild "abandon" in its flight which characterizes that captain of rovers.

My gardener, Robert Stafford, found it very locally confined to some marshy glades in a wood near my house, where the trees have been cut, and the undergrowth is some two years old, and where thistle-blossom and *Veronica* offer it a profusion of flowery attractions. Once settled on a blossom, it may be taken easily with the fingers, but has the power, when annoyed, of emitting a pungent though inoffensive smell.

Two examples, out of 150 recently taken, have the shoulder spot stopping short of the suture, thereby simulating the rarer *T. abdominalis*; and it is to such a variety of *fasciatus* that the single specimen mentioned by me years ago in the "Intelligencer" must be referred.—JOHN T. D. LLEWELYN, Ynisgygerwn, Neath; June 21st, 1869.

* Since the above was in type, we observe in the same Journal, 20th inst., a record of the capture of tropical fire-flies at Caterham; ♂ *L. noctiluca* is probably the cause of both these notices, though a third writer suggests that the Ashford fire-flies may be some he brought from Coblenz and turned out at Dover!—EDS.

New localities for Bagöus incertatus.—In the beginning of last June, I took several examples of this species (recorded as British by Mr. Rye, in the June No. of this Magazine), in a brackish water ditch in the Isle of Sheppey, about two miles from Sheerness. It was very local, only occurring in one little spot.

I have since taken a single specimen of it at Southend, in decaying sea-weed, on the shore.—G. C. CHAMPION, 274, Walworth Road, S., July, 1869.

Note on Anax formosus, &c., at Lee.—A few days since, I discovered that the Lee clay-pits, by the side of Burnt Ash Lane, were frequented by a host of Dragon-flies, of which *Anax formosus*, not generally a common insect, was the most conspicuous, mixed with *Lib. depressa* and *4-maculata* in about equal numbers, and an occasional *L. cancellata*, &c. I had never before seen *A. formosus* on the wing, and a more magnificent sight than that of a score of the males hawking over two small ponds, could scarcely be imagined. The females were mostly engaged in oviposition, and for this purpose they thrust the abdomen into the water to the extent of about half-an-inch.—R. MCLACHLAN, Lewisham, 13th July, 1869.

Note on Enoicyla pusilla.—I have two mutilated males of this species (put aside with other odd insects and neglected) which I remember to have captured one autumn, some eleven years ago, several miles from Worcester. I can now reckon four localities in this county where I have found the species.—J. E. FLETCHER, Worcester, 2nd July, 1869.

Observation on Cecidomyia taxi, Inchbald.—Since Bremi (Beitrag zu einer Monographie der Gallmücken, 1847, p. 25) surmised that the artichoke galls so often met with on the branches of *Taxus baccata* belonged to a *Cecidomyia*, Mr. Peter Inchbald has given in the "Ent. Weekly Intelligencer" for 1861, pp. 76—77, "an account of the Economy of the Gall-midge, and a description of both sexes of the Imago."

Having just bred the insect from specimens sent to me by my kind friend Mr. H. W. Kidd, of Godalming, I beg to offer the following memoranda concerning its metamorphosis, &c., leaving out all points which by Mr. Inchbald's paper have been satisfactorily settled.

No cocoon is spun within the closely-fitting nest of whitish leaves composing the interior of the gall. The pupa lies bent on the back, with the head directed upwards.

An immature pupa examined on the 31st of May, was about a line long, deeply notched between thorax and abdomen, the back of the latter very rough, and of a dull tile-red colour, the strongly arched thorax polished, red; the eyes black and shining; the wing-, leg- and feeler-cases entirely and closely pressed against the body, and all these parts deep red; forehead obtuse, notched in the middle vertically; the basis of the feeler-cases quite smooth; the outer leg-cases reaching as far as the penultimate segment, wing-cases only half so far; the outer (fore-) leg-cases the longest, the middle ones shorter, the inner (hind-) leg-cases the shortest; border of the nine abdominal segments flattened, and, if viewed from above, somewhat darker than the body itself.

On the 2nd of June this pupa had attained the following mature state:—The

whole upper part of the body and appendages had turned very dark brown, whilst the abdomen retained its dull tile-red hue; the tips of the leg-sheaths were standing clear of the body, which latter had become somewhat contracted, the wing and feeler-cases were still lying closely along the body.

The mature pupa forces its way straight up the bract of the leaves, and when the imago has escaped, the white transparent pupal skin is left protruding from the gall. The empty pupa displays the feeler-sheaths detached from the head, not unlike a pair of curved horns.

The imago seems to belong to the sub-genus *Cecidomyia* of Loew, and the neurulation of its wings would place it between *Cec. rosaria*, Loew, and *C. riparia*, Schrank, according to Winnertz's figures (Linnæa, vol. viii, tab. 2, fig. 1 and 2).

Specimens bred in captivity and kept on yew branches lived only two or three days.

On the 6th instant I observed the larvæ of an ichneumonideous insect encased within a full-grown larva of this *Cecidomyia*, leaving only the last three segments of the latter free. Notwithstanding the presence of this parasite, the *Cecidomyian* larva had strength enough to assume the outward guise of the pupa; but scarcely had this been accomplished, when the full-fed inmate made its exit through an opening between the thorax and abdomen, leaving its victim to perish.—ALBERT MÜLLER, South Norwood, S.E., June 16th, 1869.

Note on the larva of Lycæna Arion.—I have this year succeeded in rearing the larva of *Lycæna Arion*, which I think is as yet undescribed. I watched the butterfly at last, and saw it depositing ova with a business-like sort of flight, one at a time, on the blossoms of the wild thyme. Seizing upon the plants, I soon discovered what the ova were like, and within a few hours collected about 100 of them. The ovum is like that of all butterfly ova, of an oblong shape, but not always deposited in a standing position. It has no ribs, and is either yellow-orange or white (similar to those producing *Cardamines*). The larva emerged within a week, to the hour, and fed up pretty rapidly.

It is onisciform, and slightly flattened on the sides, the back being rather convex. Head very small, black or blackish-brown. Body greenish, the dorsal and sub-dorsal lines represented by a row of three black spots on the middle of each segment. Legs almost imperceptible. Feeds exposed on flowers of *Thymus serpyllum*. Having taken all possible precaution towards the rearing of the insect, I shall be most happy to give any further particulars.—E. DEMBSKI, Cheltenham College, July 11th, 1869.

Are Lycæna Medon and Artaxerxes distinct species?—The question as to the relationship between *Lyc. Medon* and *Artaxerxes*, which Professor Zeller is endeavouring to solve, opens up the larger one—What evidence ought to be taken as proving two or more forms to be varieties of one species? Can there be any but that of the one having been reared from the eggs of the other? Of course eggs of a variety might produce other forms not obtainable direct from the type. Intermediate forms, and even similarity of larvæ, are not conclusive, and only justify us in saying "probable varieties." I use the term varieties in the restricted meaning

employed by Staudinger in his Catalogue—i. e., local races or forms, which in some districts (more or less extensive) displace the type. Now there must be some place or places where these originated, and where, in all probability, both forms still co-exist; and there only could we with any certainty expect to obtain the one from the eggs of the other.

I believe the form *Medon* is never seen in Scotland, nor that of *Artaxerxes* on the Continent; but there are certain districts in England where both (as also intermediate) forms are said to be taken. Could not entomologists in these localities rear the eggs of both forms, and see whether both can be obtained from the same parent? This will involve a little more trouble than coolly assuming their identity.

The fact of *Artaxerxes* never having been met with in any locality in either Northern or Alpine Continental Europe, goes far, I think, to prove its being distinct. In this respect it is unique among our *Rhopalocera*, all our others, whether species or varieties, being met with on the Continent. I intend, if possible, to send eggs of *Artaxerxes* to Professor Zeller, but I do not expect they will produce any other form, even with the change of food-plant.—A. WILSON, Young Street, Edinburgh, 5th July, 1869.

On *Lycæna Artaxerxes*.—I received on 8th May of this year, by my friend, Professor Hering, of Stettin, four larvæ of *Lyc. Artaxerxes*, sent from Edinburgh expressly for me. Three were full grown, so that one was a pupa already on the 10th. The fourth was much smaller, more yellowish, and with a sickly aspect. As the *Helianth. vulgare* does not grow in the vicinity of Stettin, in order to do something towards saving it from perishing by starvation, I offered it some young plants of the *Erodium cicutarium*, and lo, it bored directly into a flower bud, which on the following day, I found eaten out. In the sequel I saw it really consuming, with good appetite, the unopened blossoms of that plant. While it was thus eating and growing, its colour gradually changed to a healthy green one. As late as the 22nd May, it changed to a good pupa, though it had before fallen down from the place where it had attached itself. On the 9th June, a small *Artaxerxes*, ♀, made its appearance.

Now I had expected that the different food which it had eaten for more than eight days would have exercised some influence and a little altered its markings, so as to become more like *Medon* (*Agestis*). But no, it is the completest possible *Artaxerxes*, having a considerable pure white spot in the middle of the fore-wings, and the white spots of the under-side, with no trace of a black centre; even on the upper-side of the hind-wings a faint white dot is to be seen.

As the larva of *Artaxerxes*, in the case of necessity, feeds on *Erodium*, I suppose that that of *Medon* (*Agestis*) will do so with the leaves of *Helianthemum*, and I think it worth while to try; but to obtain a more satisfactory result than I obtained on account of so short a time of feeding one *Artaxerxes* larva, one should give them that unusual food from the earliest time possible. On such grounds as *Medon* inhabits, the plants of *Erodium*, at the end of June, or rather in the beginning of spring, must be cautiously cut next to the root, and shaken on a white sheet, by which means the larvæ will easily be obtained; and the younger they are, the fitter they will be for the experiment. The reward, perhaps, may be that the

Medon of South England, by changing its food for some weeks, may change into *Artaxerxes*, and the specific identity of the two forms will then be for ever incontestably demonstrated.—P. C. ZELLER, Stettin, 24th June, 1869.

Life history of Polia nigrocincta, and description of its larva.—Eggs laid in July and August, on the sea-pink, *Statice armeria*; first larvæ hatched September 25th; fed on sea-pink in preference to several plants offered (there can, indeed, be no doubt that sea-pink is its proper food-plant), and continued to feed upon it at intervals throughout winter, growing but very little after October, when they were about three-tenths of an inch long. Color: clear, slightly pellucid, emerald green, with a light spiracular line. Shape: long in proportion to their breadth, the dorsal lines scarcely perceptible. About May, the colour changes to a somewhat more pellucid light mineral-green, with the head, face, and trophi glass-like, and the shape is slightly flattened to the spiracular line, then becoming more cylindrical with dorsal lines double, but only faintly indicated; between the dorsal and the sub-dorsal line (which is also double, but still more faintly traced than the dorsal marks) there are three minute light dots, one above and two below, upon each segment. The spiracular line is whitish-green, well-defined upon the upper edge and toned off into the light pea-green of the under-part of the larva; feet light green, claspers slightly tinged with olive. At this stage, the larva is fond of stretching itself out upon a stem of the sea-pink or grass during the night-time, and at such times the divisions of the first eight segments appear as yellowish rings. Gradually the larva changes colour; first a dark tinge of ochreous olive-pink creeps over it, and it begins to show its preference for the flowers of the sea-pink, which is just coming into bloom. Resting on the stems with its claspers, and turned over the top of the flowers, it fairly devours them; commencing with the petals and stamens, it will, in a very short time, eat an entire flower-head, and then gnaw the stem down, after the manner of *Leucania littoralis* on star-grass, until it has to move lower down the stem itself as it feeds. Growing rapidly now, it soon becomes less flattened, stouter, with the segmental divisions more constricted and slightly pellucid, and changes to a smooth light pinkish or rich fawn colour, tinged with olivaceous (an indescribable color); the head hairy, browner than before, but still glass-like; the dorsal line a little better defined, still double on the centre of the segments, but joined together at each of the constrictions, forming a faintly defined chain-like mark down the back; the sub-dorsal line can only be seen now with a good glass, under which the coloring of the space between these lines may be seen as marmorate brownish markings or atomic suffusions, and the three segmental spots before named are now light, with a dark upper edge; the spiracular line is light, but less pronounced than before, the spiracles being composed of a dark ring with an ochreous inside. Beneath, the larva is light greenish, with horn-like feet. One peculiarity of this larva is a singular violet or peach-bloom appearance which often passes over it, especially over some of the first and last segments, as it moves. To sum up, it is one of those larvæ which have no salient points to rely upon, and this want adds to the difficulty of description; it certainly has no resemblance to the larva of any other *Polia* which has ever been in the British List, but rather approaches some of the true *Hadena* larvæ, especially, when mature, resembling in general appearance certain larvæ of

H. oleracea, being, however, of a more highly finished appearance; or perhaps it reminds more of the larvæ of the *Heliothidæ*. When full fed, the larva measures nearly two inches in length, rolls in a ring when disturbed, is a true nocturnal feeder, and subterraneous in its habits, burying in the light vegetable soil or within the close tufts of the sea-pink. During the day time, it spins a slight silken web in the earth or amongst dead plants as a puparium, and changes immediately to a light brown, smooth, stout pupa, ovoid to the end of the wing-covers, then sharply conical to the anal segment, out of which spring two rather large hooks. It only remains a few weeks in the pupa state, the perfect insect appearing in July and August, frequenting the rocky shores of the Isle of Man, near Douglas and Duchan. On the continent, this species varies very much, some specimens being difficult to separate from *P. flavocincta*, whilst others want the yellowish tones which enrich that species; but I have not yet seen or heard of a single specimen of our dark form occurring anywhere except in the Isle of Man, and I think that, as the Manx specimens are all of one type, I shall call them "*Var. statice*."—C. S. GREGSON, Rose Bank, Stanley, Liverpool, 10th July, 1869.

Description of the larva of Plusia interrogationis.—On June 9th, 1869, I had the pleasure to receive the larva, nearly full fed, of this pretty species, from Dr. F. Buchanan White, who had taken several in Inverness-shire, and who during the previous autumn had swept up a few young examples from heather in Ross-shire, four of which he kindly sent to me in October. These were barely one-third of an inch long, and presented the same pattern as the mature larva, being of a full green colour with the sub-spiracular stripe of sulphur-yellow very conspicuous. They fed occasionally on heather till the end of November, and rested on the stems in a curved posture. Only one, however, lived on to nearly the end of March, and was then half-an-inch long, and, no young shoots appearing on the heather, it fed a little on a blade of grass and sallow catkin; but one morning I had the mortification of seeing it hang lifeless from a stem.

The full grown larva of *interrogationis* measured nearly one inch and a quarter in length when stretched out, though it generally had the anterior half of its body arched upwards, being thick in proportion to its length, tapering gradually from the sixth segment to the head which is smallest, the hinder segment tapering but little. Viewed sideways, the back of the twelfth segment rises a little to the middle, and slopes rapidly downwards from thence to the anal extremity, the two pair of ventral prolegs being equally developed.

The ground colour is a bright and deep full green, but paler on the back, though the dorsal stripe is as dark as the sides, and begins wide, narrows, then swells wider to an angle in the middle, decreases similarly, and widens towards the end, and is finally edged throughout with greenish-white. This is its course through all the segments, except the thoracic, where it is more simple and linear.

The sub-dorsal line is greenish-white, finely edged with darker green; and midway between the dorsal and sub-dorsal is a tortuous line of greenish-white on which are the usual tubercular warts of the same colour, each bearing a fine brown hair. The sub-spiracular stripe is sulphur-yellow, and the belly and legs are not quite so green as the space between the sub-spiracular and sub-dorsal.

The head is green, finely freckled with greenish-white, and having a black

streak round the sides to the mouth. Some very small yellow scattered tubercles on the ventral surface.

On the 11th June, it began to spin its pale grey silken oval cocoon amongst the stems of heather, and a few days later the pupa became dimly visible through it, lying in the middle, in a nearly horizontal position, the head being lowest. Its length about half-an-inch, the wing cases nearly as long, their tips uppermost, and projecting in a blunt point; from them the abdomen is bent downward at a right angle, having a blunt anal point attached to the shrivelled coat skin of the larva. Its general appearance rounded, obtuse, and thick, of a blackish-brown colour, and with scarcely any polish.

The perfect insect emerged on July 8th.—WM. BUCKLER, Emsworth.

Capture of Hadena assimilis.—On the 30th June last, I took a specimen of the above insect, on the 10th inst. another, and on the 11th inst. a third, all at sugar in Inverness-shire.—NICHOLAS COOKE, Spring View, Liscard, 16th July, 1869.

Occurrence of a Dicrorampha new to Britain; D. plumbana, Sc.—Some time since Mr. Hodgkinson, of Preston, kindly sent me examples of a *Dicrorampha* evidently new to our lists. One of the specimens (a ♀) I forwarded to Professor Zeller, who has most obligingly furnished me with its name. He writes as follows concerning it:—"The *Dicrorampha* ♀ I can by no means separate from what I "consider to be *D. plumbana*, Sc. (*Zachana*, H., *Blepharana*, H.-S.): identical "specimens were abundant in Upper Carinthia, before and after the beginning of "June." Mr. Hodgkinson on capturing the insect at once saw that it was something new to us. He again met with the species at Witherslack, in the beginning of the present month. Dr. Staudinger gives *ulicana*, Gn., as a synonym of *plumbana*, but Mr. Hodgkinson's insect is certainly not the *ulicana* of our lists.—H. G. KNAGES, Kentish Town, July, 1868.

Addition to the list of Irish Lepidoptera.—*Coccyx Splendidulana*, quite new to the Irish fauna, has been, by some error, omitted in my list.—HERBERT MARSDEN, Gloucester.

Dianthæcia compta ♂ *D. Barrettii* at Howth.—I have lately been successful in capturing a few examples of *D. compta*, and several of *D. Barrettii*. Thinking that the occurrence of the former especially will interest your readers, I send you this note.—E. G. MEEK, 4, Old Ford Road, E., July 11th, 1869.

Note on the occurrence of Dianthæcia Barrettii.—In June, 1868, I visited the Hill of Howth, in Ireland, for the purpose of taking *D. Barrettii* in its original locality, and succeeded in securing a good series of specimens, varying much in size. On reflection, it struck me that "Port-Jack," in the Isle of Man, resembled the best locality I had found for it at Howth so nearly in its Flora and Fauna (so far as I had then ascertained), that I determined to try there for *D. Barrettii* on my next visit to the Island. A few days afterwards, I went to the little kingdom, and proceeded direct to "Port-Jack," and, before I slept, had secured and set a fair specimen of *Barrettii*. This year I have again taken it there, so that we may now hope that this hitherto exclusively Irish species will be obtained in the Isle of Man, by all who work for it, at less cost in money and time than it can be hoped for in the Irish localities.—C. S. GREGSON, Stanley, Liverpool, July 12th, 1869.

Notes on Lepidoptera at Howth and Wicklow.—Having a few days holiday, I thought that I could not do better than spend them in the “Emerald Isle.” I arrived in Dublin on June 19th last. After breakfast, I walked down to the Sand hills at Dallymount. I worked them during the whole afternoon, but took nothing, perhaps in consequence of the rain which came down steadily all the time.

On Monday, June 21st, I went to Howth, after receiving instructions from Mr. More (of the Royal Dublin Society), to whose disinterested kindness in pointing out localities I am indebted for a comparatively successful campaign in a bad season. I tried the Bailey Hotel, but found I could not be “taken in,” so made out a most comfortable and reasonable lodging at a house just above the hotel, where I would advise any entomologist to stay, as it is close—for Howth—to the hunting ground. Ask for “Cabena’s,” at the top of the hill. In due course, I went to work, and got a few *Eupæcilia albicapitana* and *Sericoris littorana* in the afternoon. In the evening there was more rain. As I took up my position for the night on the side of the cliff, I had the pleasure of meeting Messrs. Meek and Smith, of London. We watched the *Silene maritima* flowers most of the night, despite the teeming rain. When we gave up, I found I had taken one *Dianthæcia Barrettii* amongst a few other things. We spent our days in setting our insects, and in hunting the cliffs and searching for pupæ of *Sesia philanthiformis*; of which, although Mr. Meek and I worked hard for many hours, we found no trace. The nights were devoted to the *Silene* flowers from “dusk to dawn.” Without further comment on Howth, I give a list of species caught during the short time I was there. Mr. Meek will send you an account of his usual good luck, so I will not refer to his capture.

M. bombyliiformis (fine series), *Hepialus vellea*, *V. maculata*. *Eurymene dolobraria* in a wood adjoining the Old Bridge near Lough Dan. *Melanippe tristata*, *E. palumbaria* (highly coloured), *Thyatira batis*, *A. rumicis* (fine var.), *M. anceps*, *P. ænea*, *Argyrolepis Baumanniana*, and several common species.

June 24th. This afternoon, Mr. More and I set off for that lovely county Wicklow. After some three hours ride on an outside car, we arrived at Murphey’s Hotel, Roundwood, which we made head quarters. During the next four days we visited and collected in or near to Roundwood, Lough Dan, Lough Luggala (L. Tay), several woods and bogs on the banks of the River Armamoe (which river and the lakes afforded us some nice trout fishing), Glendalough, Seven Churches, &c. I sugared each evening, but with poor success. The locality is a very likely one, and if worked well, would, I am sure, repay; it is easy of access, and not expensive. Considering this is the worst season I have known, I think I did pretty well there, as follows: *Acidalia subsericeata*, *Larentia salicata*, *Eup. venosata* (very large), *Eup. nanata*, and an *Eupithecia* I do not know, (perhaps *Eup. distinctata*), *M. galiata*, *D. capsophila*, *D. Barrettii*, *P. subornatella*, *Eupæcilia albicapitana*, &c.

After our return to Dublin, we spent one evening in the Botanical Gardens, at Glasneven, which are a great feature of the Royal Dublin Society. I got little in them, but the night was very cold.—T. J. CARRINGTON, York, July, 1869.

Note on Lithosia caniola.—On the 1st March Mr. Stainton kindly sent me, from Milan, five larvæ of *Lithosia caniola*, about one-third grown. They did not reach me for a week, and having been without food, air, or light during the interval, were in a sickly condition, and all except one shortly died.

The remaining larva went to pupa May 5th, and has this day (June 18th) produced ♀ moth in all respects identical with specimens from Howth, but perhaps a little above the average in size.

Mr. Stainton informs me that his attention was drawn to some dark objects on the white wall of one of the interior passages of the hotel at Florence, which at first sight he had passed, thinking they might be *Julidæ*, but on examination they proved to be larvæ of *caniola*: there were more than a hundred on one wall, but there was no visible food. On sending them to me he suggested that, from the position in which found, they ought to feed up if simply "placed on the door step," and that real green vegetable food would probably be too strong for their digestion, as they could have had no experience of such rich diet. However, considering the cooler climate of England, I ventured to supply the gentle stimulant of a stone covered with a minute lichen, and also an occasional leaf of clover. I was not able to observe that the clover was eaten, nor the lichen diminished in quantity, but still the larva throve on its meagre diet.

The moth has emerged a month earlier than it does at Howth, although it remained in the pupa state six weeks, or more than double the period usually occupied by the Irish insect. The greater heat of the weather at the period of the year (July) in which the Irish *caniola* undergoes pupation possibly explains the discrepancy.—EDWIN BIRCHALL, Newlay, Leeds, June 18th, 1869.

DESCRIPTION OF A NEW SPECIES OF *LEPTALIS* (*LEPIDOPTERA RHOPALOCERA*).

BY W. C. HEWITSON.

LEPTALIS DESINE, *nov. sp.*

♂ Upper-side, dark brown. Anterior wing with four white spots, the first and largest divided by the nervures into five parts, one of which is within the cell, the second between this and the anal angle, the third (which is trifid) and fourth are sub-apical; a small linear spot of orange near the middle of the inner margin. Posterior wing, where it meets the upper wing, broadly lilac-white, polished, and below this a large oblong spot of brilliant orange.

Under-side, paler brown. Anterior wing with the spots as above, the lower half pale lilac polished white, marked by a large spot of opaque white. Posterior wing crossed (parallel to the outer margin) by a central band of yellow spots.

Alar exp., $2\frac{4}{10}$ inch.

I am indebted to Mr. Belt for this beautiful species, from Chontales, in Nicaragua. It is of the form of *L. Critomedia*.

Oaklands, Weybridge.

July, 1869.

ENTOMOLOGICAL SOCIETY OF LONDON, 5th July, 1869. F. SMITH, Esq., Vice-President, in the Chair.

Albert Müller, Esq., of South Norwood, was elected a Member.

Mr. Jenner Weir exhibited an enormous tick taken off a Greek Tortoise.

Mr. Colville Barclay related his experiences concerning the damage done to the sugar-crop in Mauritius by the "Pou à poche blanche."

Mr. Smith exhibited a coloured drawing of the luminous larva shown by him at the last meeting, which Dr. Candèze and Professor Schiödte (present as visitor) believed to belong to the *Elateridæ*. He also exhibited a living field-cricket, found near Farnham; and a series of *Pissodes notatus* from Bournemouth.

The Hon. T. De Grey exhibited three examples of *Cosmopteryx orichalcea* from Wicken Fen; and a series of a *Tortrix* which Professor Zeller held to be a dark form of *Carpocapsa juliana*; it had been bred in April, from pupæ in moss on beech-trunks, and Mr. De Grey expressed himself rather uncertain as to its identity with *juliana*.

The Secretary read a long and interesting letter from Mr. C. A. Wilson, of Adelaide, with notices of various South Australian insects.

Mr. C. M. Wakefield (present as a visitor) gave some account of the insect-fauna of New Zealand, and remarked that its prevailing feature was the paucity of species, as in Mammals and Birds. Mr. Fereday had only obtained about 14 or 15 species of Diurnal *Lepidoptera* and 250 of moths. He himself had only noticed about 120 species of *Coleoptera*. *Trochilium tipuliforme* had been introduced into New Zealand with its food-plant. Mr. Wakefield had lost all his collections of New Zealand insects through the burning of the ship "Blue Jacket."

Mr. A. R. Wallace read a Continuation of his "Notes on Eastern Butterflies."

Mr. Edwin Brown communicated a paper "On the Australian species of *Tetracha*."

This was the last meeting before the autumn recess.

ON COPTODERA AND THE ALLIED GENERA.

BY H. W. BATES, F.Z.S.

In examining the species of *Coptodera* in my collection, I have found some features in their structure which seem to have escaped the attention of all authors who have written upon that genus. These I now propose to make known, together with the descriptions of many new species.

The genus belongs to the *Truncatipennes* division of the *Geodephaga* and group *Pericalinæ*, distinguished from the *Lebianæ* by the length of the labrum, which covers in great part the mandibles, and is often longer than broad, and by the simple penultimate joint of the tarsi. The species of *Coptodera* all live on and under the rotten bark of trees, running with great rapidity; their surface is free from pubescence and is generally metallic in colours, and ornamented with flexuous bands of a pallid hue. Their habit of searching for prey under close-fitting bark is associated with a flattened form of body and especially flattened and lengthened mouth; the mandibles being long, depressed, very acute and scarcely curving towards the apex, and the ligula and paraglossæ, together with the labrum, lengthened and flattened in the same proportion. The two terminal joints of the maxillary palpi form together an

elongated fusiform figure, the penultimate joint being much shorter than the terminal one, and the latter narrowing to the apex; the terminal joint of the labial palpi is also fusiform and slightly truncated at the apex. The elytra are truncated, as in all the allied genera.

Dejean, and after him Lacordaire, has stated that the mentum in *Coptodera* is provided with a large central tooth; this is an error, which was avoided by Schmidt-Göbel, who characterized the genus anew before the appearance of Lacordaire's first volume of the "Genera." In fact, the emargination of the mentum in the genus is simple, as I have convinced myself by the dissection of seven species. An error of this kind throws an unpleasant uncertainty on all characters drawn from hidden parts of the mouth of the smaller genera of *Geodephaga*, as given in the chief works on this great group. A character, which has been overlooked by all authors, is the structure of the anterior tarsi in the males; these are slightly dilated and furnished beneath with double rows of scales, precisely as in the great groups *Anchomeninæ* and *Feronianæ*. This character is interesting, as it aids us, in conjunction with others, in judging of the true affinities of the group. In fact, I think there can be no doubt that the *Pericalinæ* (together with the greater part of the *Lebianæ*) are closely allied to the *Anchomeninæ*; the discovery of genera exactly intermediate between the two groups, one of which is described in this paper, completing the evidence. The form of the ligula and its paraglossæ, given as one of the principal characters of the *Pericalinæ*, varies a good deal in allied species; but all agree in possessing broad, thin, and elongated paraglossæ and a narrow ligula; the paraglossæ attached to the apex of the ligula and surpassing it in length. The variations consist in the extent to which they surpass the ligula; in one species, *C. polygona*, they are, as in the genus *Eurycoleus*, but very little longer; in others, they are much longer, and tend more or less to curve inwards, and embrace the tip of the ligula. I do not think that these modifications are at all of generic value, as hastily assumed by some authors. Before they are claimed as generic characters, the mouth of every species in a genus should be examined; and this being practically almost impossible, such characters should be used with great caution.

The following genera form part of the group *Pericalinæ*; in all, as far as I know, the males have squamous soles to the anterior tarsi; and in *Catascopus* the first joint of the middle tarsi is also sometimes squamous. The male of the fine *Catascopus cupripennis* has the breast in the middle, and anterior thighs, densely hairy, as in many male *Agræ*.

A. Mentum not toothed.

1. Claws denticulated.

EURYCOLEUS. Mandibles short and strongly curved ; paraglossæ scarcely longer than the ligula ; body very broad and depressed ; elytra minutely punctured, not distinctly striated ; colours yellowish with distinct black spots ; thorax obliquely truncated on each side of the base.

Tropical America.

COPTODERA. Paraglossæ more or less surpassing the ligula ; body oblong, distinctly striated ; base of thorax straight, or nearly so.

Tropical and sub-tropical America, Africa, Asia.

STENOGLOSSA. Paraglossæ greatly elongated and converging at the tips ; thorax distinctly lobed in the middle of the base.

Tropical America.

NYCTEIS.
BELONOGNATHA. } Doubtful if distinct from *Coptodera*.

Madagascar.

MOCHTHERUS. Paraglossæ of the same length as ligula ; surface alutaceous, not metallic ; thorax heart-shaped with projecting hind angles.

Tropical Asia.

2. Claws simple.

PERICALUS. Eyes very large.

Tropical Asia.

B. Mentum toothed.

1. Claws denticulated.

PHLÆOTHERATES. Facies of *Anchomenus* ; black, glabrous.

Tropical America.

PHILOPHLÆUS. Claws with two or three very small, indistinct teeth ; body flat, clothed above with short pubescence.

Australia.

2. Claws simple.

LOBODONTUS. Tooth of mentum very large ; colours blackish with red spots.

Africa.

THYREOPTERUS. Tooth of mentum moderate ; body broad and greatly depressed ; colours not metallic.

Tropical Asia, Madagascar, Africa.

ÆRSINŒ. Tooth of mentum very short and broad ; labrum much broader than long ; surface coarsely punctured, not metallic.

Africa.

CATASCOPUS. Colours metallic, brilliant, without pale markings.

Tropical Asia, Australia, Africa, America.

MISCELUS. Body elongate, colours black; facies of *Feronia*.

Tropical Asia.

I doubt whether *Eucheila*, *Rhombodera*, and *Scopodes* can be included in the group, owing to the widely different form of the labrum, and in *Eucheila*, the very large, horny ligula; but other genera, some of them apparently undescribed, will have to be incorporated. *Mormolyce*, included by Lacordaire in the *Pericalinæ*, constitutes a distinct sub-family.

COPTODERA POLYGONA, n. sp. *Testaceo-rufa, elytris nigris, margine laterali fasciisque duabus angulatis, apud suturam haud interruptis, a margine lineâ nigra separatis, flavo-testaceis: thorace parvo, lateribus late marginatis, utrinque bi-angulatis; elytris latis, convexis, profunde striatis, striis vix punctatis. Long. 8-9 millim. Lat. elytr. 4½ millim. ♀.*

A species resembling *Eurycoleus* in the shape of its thorax and the large size of its elytra; the latter, however, are deeply striate like the majority of *Coptoderæ*. Bright testaceous-red, with the sole exception of the elytra, which are black with the lateral margins and two irregular belts of a yellower-testaceous hue, one at one-third and the other at three-fourths their length; these belts are not interrupted at the suture, but do not reach the pale lateral margin, being terminated by the ninth interstice, which is black. The head with the eyes is rather narrower than the thorax; the labrum is not much elongated, but about as long as broad; the antennal joints are cylindrical, and the surface of the head is polished and impunctate, with a distinct curved fovea in the middle of the forehead. The thorax is very small in proportion to the elytra; it is widened from the apex to nearly the middle, then narrowed in an incurved line to the hind angles, which are situated at a distance from the actual base, the latter being straight or even a little emarginate in front of the yellow scutellum. The elytra are wide and somewhat convex, the shoulders broadly rounded and advanced, the sides with a broad flat margin, and the apex obtusely truncated; the surface is deeply sub-punctate-striated, with convex and very finely alutaceous interstices; the two pale dentated belts leave three black belts of the ground colour, the basal and middle one being of about the same width as the pale fasciæ, and the apical one forming a large black spot on each side the suture.

Taken at Ega, Upper Amazons, running amongst fungi on the bark of a dead tree in company with *Eurycolei* and *Stenognathus melanarius*.

COPTODERA LATIPENNIS, n. sp. *Testaceo-rufa, elytris flavis, fasciis duabus dentatis nigris, altera basali, altera pone medium; thorace ut in C. polygona, parvo, utrinque bi-angulato, elytris profunde striatis, striis minute punctatis. Long. 8 millim. Lat. elytr. 4½ millim. ♀.*

Procris globulariæ, &c., at Folkestone.—I have found this tolerably abundant in one particular spot near Folkestone, from which place I think it has not yet been recorded. On the sunny slope of a hill rising from one of the numerous hollows in the neighbourhood, it was possible to take any number of them; though, from the nature of my engagements, I could never get to the spot till about six in the evening, and was then obliged to be content to take whatever specimens lingered about in the last rays of the sun. Flying with it, there was also a plentiful supply of *statices*, and a few, if I am not greatly mistaken, of *Geryon*; but of this latter species I will not be certain until I have shown it to a better authority than myself. I caught the first specimen on the 25th of June, and at the present date they are still about. This is later than they are usually said to appear; but this must be attributed to the season, which is certainly adverse to entomologists.

T. chrysidiforme was a long time putting in an appearance, and has only been out during the past ten days, and that very sparingly, one specimen in a couple of hours being my reward in the same spot, where, last year, in the middle of June, I could take ten or a dozen in the same time. *T. Bondii* has come out during the past week or so, but, I fancy, is not so abundant as formerly.—HENRY ULLYETT, Folkestone, July 6th, 1869.

CHANGES OF ADDRESS.

ALBERT MÜLLER, from Penge, to Eaton Cottage, Sunny Bank Road, South Norwood, S.E.

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EXCHANGES.

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H. G. KNAGGS, M.D., F.L.S. E. C. RYE.

R. M'LACHLAN, F.L.S. H. T. STANTON, F.R.S.

“J'engage donc tous à éviter dans leurs écrits toute personnalité, toute allusion dépassant les limites de la discussion la plus sincère et la plus courtoise.”—*Laboulbène*.

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the middle of the head from the epistoma to the occiput, and on each side of the central line of the thorax, are nearly black, with a brassy-green tinge. The thorax is strongly transverse, quadrate, with the sides rounded anteriorly. The basal fold and lateral margins of the elytra are testaceous; the pale belts are composed of very short lines forming together strongly zig-zag fasciæ.

Ega; rare.

COPTODERA LEBIOIDES, n. sp. Pallidè testacea, capite obscuriore, elytris viridi-æneis, fasciis duabus flexuosis, pallidis, profunde punctato-striatis: thorace basi medio late producto; antennis articulis brevibus, crassis, sub-moniliformibus. Long. 4 millim. Lat. elytr. 2 millim.

Closely allied to the preceding, but smaller, the middle part of the base of the thorax distinctly produced and rounded, and the joints of the antennæ much thicker and shorter. The general colour is pale testaceous, with the elytra brassy-green; the pale belts are narrower than in *C. cupreotincta*, the first being interrupted by the green sutural interstice, and both separated from the pale lateral margin, as usual, by the dark ninth interstice.

Ega. In my own and the Baron Chaudoir's collection.

COPTODERA LINEOLATA, n. sp. Piceo-brunnea, labro, palpis, antennis pedibusque testaceis; supra vix nitida; thorace transverso, quadrato, lateribus modicè rotundatis, angulis posticis haud prominentibus; elytris profundè punctato-striatis, fasciis macularibus duabus, è lineolis parvis, discretis, formatis.

Long. 5—6 millim. Lat. elytr. 2 $\frac{3}{4}$ -millim. ♂ ♀.

Destitute of metallic lustre; head (with the eyes) narrower than the thorax, the latter scarcely narrowed behind, and but little rounded on the sides anteriorly, the posterior angles not prominent, and the base line nearly straight. The pale fasciæ on the elytra are formed of remarkably distinct and pale lineoles; five forming the first belt (2 short ones on the 2nd and 3rd, a much longer one on the 4th, and 2 shorter ones again on the 5th and 6th interstices), and 6 or 7 forming the second, all of which are short and separated from each other. The labrum is much elongated and the antennæ are formed of slender cylindrical joints.

New Guinea. Collected in numbers by Mr. Wallace.

COPTODERA CYANELLA, n. sp. Suprà lætè cyaneo-viridis, thoracis elytrorumque marginibus lateralibus rufis, his maculâ utrinque discoidali prope basin, fasciaque postica abbreviata communi valde curvata, testaceo-rufis; corpore infra piceo-nigro, oris partibus, antennis pedibusque testaceo-rufis. Long. 7 millim. Lat. elytr. 3 $\frac{1}{2}$ millim. ♂ ♀.

A handsome species allied to others described by Schmidt Göbel from Burmah. The head with the eyes is narrower than the thorax; the latter is transverse quadrate, rounded outwards in the middle, and with strongly projecting hind angles;

the labrum is much elongated and sulcate in front as in the *Stenoglossæ*. The elytra are deeply striated, without perceptible punctures and with convex interstices, they are ovate in shape, widely margined in the middle of the sides, and there tinged with rufous: the colour above is dark brassy-blue or greenish; the body beneath is pitchy-black, and the legs and antennæ are clear reddish-testaceous.

New Guinea; collected by Mr. Wallace; I have specimens also ticketed as from Batchian.

COPTODERA SPINIPENNIS, n. sp. Magna, supra unicolor, cupreo-ænea; corpore subtus femoribusque æneo-piceis, antennis, oris partibus, tibiis tarsisque rufo-testaceis; capite thorace multo angustiori; hoc transverso, quadrato, lateribus antice angulatim dilatatis, angulis posticis distinctis, basi recto; elytris oblongo-elongatis, lateribus marginatis, obliquè sinuato-truncatis, utroque angulo spinoso; suprà profunde sub-punctato-striatis, interstitio septimo basin versus sub-carinato. Long. 10—11½ millim. Lat. elytr. 3¼—5 millim.

This fine species is distinguished by the long spine into which each angle of the truncature of the elytra is prolonged in both sexes. The colour varies from piceous-red with a brassy-lustre, to brilliant coppery with brassy reflections, and sometimes the head and thorax are glittering brassy-green whilst the elytra are cupreous.

Upper and Lower Amazons.

COPTODERA CHALCITES, n. sp. Oblonga, suprà cuprea, capite thoraceque parvis, æneis; hoc transversim quadrato, lateribus rotundatis, angulis posticis distinctis, basi fere recto; elytris oblongo-ovatis, profunde punctato-striatis, valde sinuato-truncatis, angulis haud productis: corpore infra nigro-piceo, antennis, oris partibus pedibusque rufo-piceis.

Long. 8—10 millim. Lat. elytr. 3¼—4 millim. ♂ ♀.

Scarcely differs from *C. spinipennis*, except in the absence of spines from the angles of the truncature of the elytra; in general appearance it much resembles the coppery species of *Anchomenus* and *Colpodes*. The head is small, triangular, and narrower than the thorax, which again is much narrower than the elytra. The general colour above is shining coppery, with the head and thorax generally of a green æneous tint.

Common at Ega.

COPTODERA RUTILA, n. sp. Latior, flavo-testacea, elytris (margine laterali excepto) læte viridi-æneis, tenuiter punctato-striatis.

Long. 9 millim. Lat. elytr. 4½ millim. ♂ ♀.

A very handsome species, distinguished by the smooth surface and brilliant green hue of the elytra. The head is rather large, but not quite so wide as the thorax; the labrum is not much elongated but nearly square, notched in the middle of its front edge; the antennæ are robust, but the joints remain cylindrical. The

elytra are broad, considerably dilated at three-fourths the length, sinuate-truncate at the apex and margined on the sides, the dilated margins are yellow like the rest of the body, the surface (including the basal margin) is brilliant unicolorous brassy-green, slightly sericeous, owing to the fine transverse-striation of the surface; the striæ are very feebly impressed and punctate. The teeth of the claws are remarkably long; but leave a long apical portion of the claw, as usual, simple.

Ega; coursing amongst Boleti, on dead trunks.

COPTODERA ÆNEORUFA, *n. sp.* *Rufo-testacea, elytris æneo-micantibus, profunde sub-punctato-striatis, capite thorace angustiori, labro elongato, apice sulcato, thorace transversim quadrato, lateribus rotundatis, angulis posticis haud prominulis, basi recto.*

Long. 7 millim. Lat. elytr. 3 millim. ♂ ♀.

The colour of the body and limbs is entirely testaceous-red, with the exception of the elytra, which are bright æneous, in most examples with the reddish ground-colour shining through; the colour sometimes passes to golden, but never to cupreous. The thorax has two indistinct brassy-brown spots on the disc. The antennæ are rather stout, with the joints oblong.

Ega; also at Pará.

COPTODERA DEBILIS, *n. sp.* *Parva, rufo-testacea, pectore abdominisque lateribus fuscis, elytris sub-punctato-striatis, fuscis, disco (striis fuscis exceptis) testaceo. Long. 5 millim. Lat. elytr. 2½ millim.*

Testaceous-red, sides of the sterna and abdomen dark brown, elytra also dark brown, with the disc paler, the striæ of a duskier hue. Head nearly as wide as the thorax, the latter broader than long, sides rounded, base arched, the sides being oblique. The elytra are deeply striate and the striæ faintly punctured.

St. Paulo, Upper Amazons.

COPTODERA VERSICOLOR, *n. sp.* *Lata, suprâ cuprea, viridi et aureo micans; capite magno, sed thorace paulo angustiori; hoc valde transverso, lateribus rotundatis, angulis posticis haud prominulis, basi recto; elytris brevibus, sinuato-truncatis, profunde punctato-striatis, fasciis valde flexuosis macularibus duabus, prima (utrinque interrupta) e maculis quinque, secunda (interdum apud suturam interrupta) e maculis septem, formata; corpore infrâ piceo-rufo, lateribus nigricantibus, antennis, labro, palpis pedibusque piceo-rufis; labro antice, ut in G. CATASCOPO, acute inciso. Long. 9 millim. Lat. elytr. 5 millim.*

Very similar to *C. depressa*, Dej., of southern Brazil; but much shorter and the thorax in porportion much broader and less narrowed behind, with the posterior angles not prominent. The macular fasciæ are very similar; the sutural interstice is narrow, and in the hinder belt sometimes free from yellow spots, and all the spots are short except that on the fourth interstice in the anterior belt.

Not uncommon at Ega; also Pará.

COPTODERA MEGALOPS, n. sp. Elongata, capite magno, cum oculis thorace latiori; hoc quadrato, lateribus antice angulatis, dein sinuato-angustatis, angulis posticis rectis; corpore subtus, pedibus, capite thoraceque viridi-æneis, elytris violaceo-cupreis, oblongis, sinuato-truncatis, angulis externis dentiformibus, suturalibus spinosis, suprâ profunde punctato-striatis, fasciis duabus macularibus testaceis; antennis obscure piceis, articulis basalibus æneis.

Long. 7½—11 millim. Lat. elytr. 2½—3½ millim. ♀.

Distinguished by the very prominent eyes, which make the head wider than the broadest part of the thorax, in this respect resembling *C. Schaumii* (Chaud.) from Costa Rica. The under-surface of the body, femora, parts of the mouth and basal joints of the antennæ are dark brassy-green; the head and thorax of a more brilliant green, the head with five or six sharp furrows on each side near the eyes; the thorax is nearly as long as broad, and is remarkable in not having the sides rounded, but produced into a distinct angle, not far from the front margin, and somewhat sinuated both before and after the angle. The labrum is sharply notched in its front edge and is of a brassy-black hue. The elytra are sinuate-truncate, with the lateral angles of the truncature produced into a broad sharp tooth, and the sutural angles into a narrow spine; the pale belts are formed of linear spots; the anterior belt of six, all short, except that on the 4th interstice, which is four times the length of any of the others, and the posterior belt of seven (not including an indistinct spot on the sutural interstice), all of moderate length.

Ega and Lower Amazons; in the rotting and broken bark of the boughs of large trees, especially in places where these lie across each other, where the species sometimes occurs in plenty. *C. megalops* differs from *C. Schaumii* (*bifasciata*, Schaum, Berl. Ent. Zeits., 1860, pl. iii, p. 4), in the richer violaceous-copper hue of the elytra, the absence of green tinge towards the base, and of the additional yellow spot near the base on the 5th interstice, besides other characters.

Besides the numerous species above recorded, the following described species occur in the Amazon region:—

C. luculenta, Erichs., Consp. Ins. Peru, p. 69. Common at Ega.

C. picea, Dej., ii, p. 458. Generally distributed throughout the country, but rare.

Genus STENOGLOSSA, Chaudoir.

This genus was founded by Baron Chaudoir on certain very small *Coptodera* forms, chiefly on account of their having a very long and narrow ligula, with elongate paraglossæ convergent at their extremities. On dissecting *St. dromioides*, I find his description accurate, but do not see that these organs differ essentially from those of several true *Coptoderæ*. The mentum, however, differs from them, in being much

narrowed anteriorly, with narrow and short side-lobes closely embracing the base of the ligula or labium. A better character still is the form of the thorax, which has a decided basal lobe, the base on each side being obliquely sinuate-truncate. The form of thorax, however, differs much from that of the true *Lebia*, in which the sides are widely dilated and flattened out. Several *Coptoderæ* show a trace of the basal lobe, and it is doubtful if the present genus can be maintained. The species have precisely the same habits as the *Coptoderæ*.

Baron Chaudoir himself pointed out the species in my collection belonging to his genus *Stenoglossa*, none of which agree with the one he described, viz., *C. variegata*.

STENOGLOSSA PALLIDA, n. sp. *Flavo-testacea, elytrorum basi fasciæque tenui maculari valdè flexuosa pone medium, nigris, striis fuscis.*
Long. 3½ millim. Lat. elytr. 1½ millim.

Wholly of a testaceous-yellow hue, with the exception of a few slender dusky marks and spots on the elytra; these consist of a dark border along the base, including the shoulders and irregularly limited posteriorly, a few blackish spots covering the large marginal punctures, and a very flexuous narrow macular belt a little behind the middle; the striæ are all dusky, the colour deepening near the apex; they are deeply impressed and punctate, with the interstices convex. Thorax transverse quadrate, sides moderately rounded anteriorly, posterior angles prominent, base obliquely sinuate-truncate on each side, leaving a broad median lobe.

Ega, many examples.

STENOGLOSSA FULMINANS, n. sp. *Flavo-testacea, capite obscuriori, elytrorum fascia maculari, valdè flexuosa, maculisque apicalibus nigris, striis fuscis.* *Long. 3½ millim. Lat. elytr. 1½ millim.*

Very closely allied to *C. pallida*, differs in no respects except in the position of the black marks of the elytra; the base is not black, whilst, on the other hand, there are two black patches at the apex which nearly touch the lowest angle of the flexuous fascia. The head, in the only example I have, is darker than the ground colour of the body; in five examples of *C. pallida*, it is of the same clear testaceous yellow as the rest of the body.

Bahia; collected by Mr. Reade.

STENOGLOSSA ATRICEPS, n. sp. *Minima, suprâ flavo-testacea, capite, maculis elytrorum prope basin et apicem, fasciæque flexuosa mediana, obscure fuscis; corpore subtùs antennisque, basi excepto, fuscescentibus, pedibus fusco-nebulosis; elytris medio valde dilatatis.*
Long. 2½—3½ millim. Lat. elytr. 1½—1¾ millim.

A minute species, distinguished by its dark brown or black head, and by the flattened margins of the elytra being remarkably dilated about the middle. The

upper surface of the thorax and elytra, the femora and base of antennæ are pale testaceous; the thorax is transverse quadrate, not much rounded on the sides, but narrowed behind, with the hind angles projecting and the middle of the base strongly produced. The blackish markings of the elytra consist of three spots near the base arranged in a triangle, three or four oblong spots on the interstices at the apex, and a middle strongly flexuous narrow band extending without interruption across both elytra.

Ega; I have a specimen also from Rio Janerio and have seen others in Mr. F. Grut's collection.

STENOGLOSSA DROMIOIDES, n. sp. Oblonga, piceo-brunnea, labro, palpis, antennis basi pedibusque pallidis; elytris fasciis duabus flavis, altera latissima, sub-basalis, scutellum attingens, altera angusta, valde flexuosa, postica; thoracis marginibus anticis et posticis medio flavis.
Long. 4 millim. Lat. elytr. 1 $\frac{3}{4}$ millim. ♂ ♀.

An oblong flat pitchy-brown species resembling many *Dromii*. The parts of the mouth, base of antennæ, the legs and middle of the under-surface of the body are pallid; the middle of the fore and hind margins of the thorax are reddish-testaceous; the thorax is small, very little wider than the head, rounded on the sides and narrowed posteriorly, with the hind angles distinct but not produced; the surface both of head and thorax is opaque, owing to the fine sculpture. The elytra have a large pale sub-basal band or patch, widest along the suture, along which it generally extends to the scutellum (also pale), and deeply sinuated on each elytron behind; the belt is lineated by the dark brown striæ, and has on the 3rd interstice two dark spots covering the ordinary large punctures; near the apex is the customary narrow flexuous band, which is divided into spots by the brown striæ.

A common species under bark in the Amazons; also found at Bahia by Mr. Reade.

PHLEOTHERATES, nov. gen.

Facies of *Anchomenus*, but of shorter figure than is usual in that genus; body depressed, surface naked, shining. Labrum quadrate, a little broader than long; mandibles thick, trigonal; apex very little curved; mentum semi-circular, with deep emargination and large tooth in the centre, angles of the lateral pieces spinose; ligula elongate, narrow, horny; paraglossæ connate, much broader and surpassing it somewhat in length; palpi moderately short, apical joints cylindrical, truncate, penultimate joint of maxillaries about one-half the length of the apical one and continuous in outline with it. Antennæ short, robust, filiform, pubescence commencing at the tip of the 4th joint. Thorax quadrate, basal line nearly straight, elytra more than twice the width of the thorax, narrowly margined, sinuate-truncate. Legs moderately short; tarsi filiform, claws strongly curved and denticulated for half

their length; three joints of the anterior tarsi slightly dilated, fringed beneath with long hairs and furnished with a double row of squamæ. This genus belongs to the *Pericalinæ* in the length of the labrum and the length and width of the paraglossæ, attached to the ligula as far as its anterior angles, and in the simplicity of the 4th tarsal joint. It is closely allied to *Stenognathus*, a genus hitherto considered as undoubtedly an *Anchomenus* form, and which also has connate paraglossæ, broader and longer than the ligula; but in *Stenognathus* the tarsal claws are quite simple. The two genera bridge over completely the interval which separates the two sub-families.

PHLEOTHERATES NIGROPICEUS, n. sp. *Oblongus, postice latior, subdepressus; piceo-niger, nitidus, corpore subtùs cum palpis pedibusque pallidioribus; elytris profundè striatis.*

Long. 9 millim. Lat. elytr. 4½ millim. ♂ ♀.

Black or piceous, with the lateral margins of the thorax and elytra reddish-piceous; the labrum, palpi and antennæ also dull reddish, with the 3rd and 4th joints of the latter darker; the legs are reddish, with apex of femora and tibiæ sometimes black; the whole median portion of the under-surface reddish. The forehead has two large distinct punctures on each side near the eye placed transversely; the thorax is finely strigose, and the elytra have the usual three large punctures on the 3rd interstice.

Found coursing amongst *Boleti* on dead tree-trunks, in company with *Stenognathus* and *Coptodera*, but much rarer; Ega and the Tapajos.

SYNONYMICAL NOTES.

Coptodera antipodum, Bates, Ent. M. Mag., 1867, p. 78, is a *Philophlæus*.

Coptodera guttata, Chaud. (*Agonocheila id.*, Chaud.), Von Harold and Gemminger's Cat., is not a *Coptodera*, but most probably not distinct from *Philophlæus*.

Coptodera viridis, Solier, has no resemblance to *Coptodera*; it is registered twice in V. Harold & Gemminger's Cat., under *Dromius* and *Coptodera*; it belongs to the genus *Lobius*, Motschulsky.

Stenoglossa corticalis, Chaud., V. Harold & Gemminger's Cat., is nowhere described, and should be erased.

Thyreopterus lutosus, Newm., V. Harold & Gemminger's Cat., is a *Philophlæus*, and occurs at Melbourne and Adelaide.

NOTES ON BRITISH *HYDRADEPHAGA*; WITH DESCRIPTIONS OF
NEW SPECIES OF *HALIPLUS* AND *HYDROPORUS*.

BY DAVID SHARP, M.B.

Having recently made a careful examination of the British *Hydradephaga*, I publish the following descriptions and notes in order to assist the Coleopterists of this country in giving names to certain species hitherto undetermined in their collections.

HALIPLUS STRIATUS, n. s.

Rufo-ferrugineus; *prothorace vagè punctato, basi utrinque impresso*; *elytris subtiliter striato-punctatis, striis æqualiter fusco-lineatis*.

Long. $1\frac{1}{3}$ -line.

Equal in size to the small varieties of *H. ruficollis*, which it resembles in colour, but from which it may be distinguished by being much narrower at the shoulders, and by the black lines on the elytra showing no tendency to being dilated at any places into spots: also closely allied to *H. fluviatilis*, but to be distinguished from that species by its smaller size and darker colour, and by the black lines on the elytra being throughout of even width, whereas in *fluviatilis* these lines are sub-interrupted at places.

Found in great numbers in a pond a few miles from Dumfries, in company with *H. ruficollis*, and also in other localities near that town.

Obs.—I take this opportunity to remark that, in my opinion, *H. fluviatilis* and *ruficollis* are but races of one species, and that, if this view be adopted, *H. striatus* may be considered as a third race. If, however, *H. fluviatilis* be considered as a distinct species from *H. ruficollis*, it will be necessary also to keep *H. striatus* separate. Indeed, though *H. fluviatilis* and *ruficollis* are so variable that I have some specimens which appear to me completely intermediate, *H. striatus* appears to be very constant, and I have no difficulty in distinguishing it from any of my vars. of either of the two other insects.

HYDROPORUS OBSOLETUS, Aubé (Icon., &c., v. 298).

This rare and distinct *Hydroporus* can be only compared with *H. ferrugineus*, Steph. (*victor*, Aubé.); it is readily distinguished from that species by its narrower form, less variegated elytra, the quite impunctate disc of its prothorax, and its more sparingly but more distinctly punctured elytra; on each side of the thorax at the base is an impression in which the punctuation is coarse, and close.

Single specimens have occurred in several parts of the North of England, and South of Scotland, to different Entomologists; Mr. Bold, Mr. Crotch, Mr. Lennon, and myself. It was distinguished from *ferrugineus* some years ago by Mr. Rye, to whom a specimen taken

by the late Mr. Ashworth in North Wales was sent, amongst other insects, for names, by Mr. Edleston; and Dr. Power has proposed for it the name of *Ashworthi*, in case of its proving an undescribed species. There is, I think, no doubt it is the *H. obsoletus* of Aubé. Its occurrence in this country is remarkable and unexpected; for it is a native of Syria, and Southern (more especially South-eastern,) Europe. The geographical distribution in Europe, however, of several species of *Hydroporus* is most eccentric. Thus, *H. 5-lineatus* has been found only in Lapland and on the borders of England and Scotland, and *H. xanthopus*, Steph., only in Southern Europe and Britain, and yet I have taken these two species near Dumfries on the same day, and in the same pond.

H. NIGRITA.

Under this name we have mixed in our collections two species, the synonymy of which is very complicated. In my references given below, I have omitted to quote the earlier authors, as the descriptions of Fabricius, and even of Gyllenhal, are altogether uncertain; with respect to the latter author it is however necessary to remark that, in the 9th vol. of Sk. Col., Thomson has reversed the interpretations generally given to Gyllenhal's descriptions of *H. pubescens* and *nigrita*, because Gyllenhal says that *pubescens* is shorter and broader than *nigrita*. In direct opposition to this change is, however, the colour given by Gyllenhal; for he says of *pubescens* that the elytra are testaceous, a term which might be correctly applied (at least to some of its vars.) to the species generally called *H. pubescens*, Gyll., but which is totally inapplicable to the species which Thomson now proposes to so designate. Nevertheless, Thomson's remark is in itself perfectly correct, and it must be understood that the assignment of the description of *H. pubescens*, Gyll., to the insect we know by that name, is conventional, and traditional, rather than evident from the description itself.

The two species we have mixed as *H. nigrita* are—

1. A black *Hydroporus* very like *H. pubescens*, Gyll., but shorter, darker in colour, and with rather denser punctuation: this species is clothed above with a distinct pubescence, the removal of which leaves the upper surface of the insect shining. The synonymy appears to be,—*H. discretus*, Fair., Ann. Fr., 1859, p. 28; Sch., Ins. Deutsch., i, 2nd pt., p. 64; *H. nigrita*, Sturm. Ins. Deutsch., ix. 56; Th., Sk. Col., ii, 24; *H. pubescens*, Th., Sk. Col., ix, 79.

2. A black *Hydroporus* in which the punctuation and pubescence is very much more sparing than in the preceding species, and whose upper surface is dull, owing

to its being finely and densely coriaceous between the punctures. This species I consider to be,—*H. nigrita*, Fab., Aubé, Icon. and Spec. gen.; Er. Käf. Mark.; Sch., Ins. Deutsch.; Wat. Cat.; *H. glabellus*, Th., Sk. Col., ix, 80.

The descriptions above alluded to present considerable discrepancies, especially as to the punctuation of the disc of the thorax; this part cannot be described correctly as altogether impunctate, but the punctures are very sparing, as is especially to be noted when the insect is compared with *H. discretus*. I have examined a specimen of *H. glabellus*, Th., sent by Herr Thomson to Mr. Crotch, and find it to agree with our common British species.

H. MELANARIUS.

As this species and its ally *H. celatus* have given me some trouble, and as we have apparently a third closely allied species, I give some descriptions for the assistance of others.

H. celatus, dark. Black or pitchy-black, with the antennæ, legs, and palpi red. The head is broad, pitchy-red, finely and rather sparingly punctured. The thorax is narrowed towards the front, its margins are reddish, it is distinctly punctured throughout, but the punctures on the disc are very much finer than at the base and sides. Viewed sideways, the angle formed by the junction of the thorax and elytra is distinct but extremely obtuse. The elytra are a little rounded at the sides, somewhat pointed behind, moderately closely and finely punctured, and down each one are distinctly to be seen the rudiments of two lines of another sort of punctures.

This species, compared with *H. memnonius*, is smaller, and less shining, but the angle formed by the junction of the thorax and elytra is just about the same as in that species. It is in some respects allied to the species I have above alluded to as *H. nigrita*; but, independently of other characters, it may be distinguished from that species, as well as from all others resembling it, by its short, and at the apex very broad, anterior tibiæ. Under a powerful glass, the elytra are seen to possess an extremely fine and scanty pubescence. Long $1\frac{1}{2}$ -line.

Widely distributed in Britain, but scarce. Malvern, Snowdon, Rannoch, Edinburgh, Cheviot, and the Metropolitan district. A duller variety was found by Mr. Crotch and myself on Mamsoul.

H. melanarius, Sturm. Black, or pitchy-black, antennæ and legs red, head and margins of thorax, more or less pitchy-red. The head finely and sparingly punctured. The middle parts of the thorax are impunctate (or very finely and sparingly punctured), but towards its posterior angles it is closely and densely punctured. Viewed sideways, the thorax is seen to continue the outline with the elytra, with but little interruption. The elytra are rather coarsely and somewhat sparingly, evenly, punctured. The upper surface as nearly as possible destitute of pubescence. The elytra without, or with only indistinct traces of, two lines of other punctures.

Long $1\frac{1}{2}$ — $1\frac{3}{4}$ -lin.

The only specimens I possess of this fine species were found by Dr. Power in Surrey.

H. MONTICOLA, n. s.

Sub-ovalis, lateribus parallelis, sub-depressus, niger, marginibus plus minusve rufescentibus, antennis pedibusque rufis; haud nitidus, parce subtiliter punctulatus, elytris vix pubescentibus. Long $1\frac{1}{3}$ — $1\frac{1}{2}$ -lin.

This insect is very closely allied to *H. melanarius*, but is small, narrower, and more depressed, with the elytra much duller, more sparingly and finely punctured, and not quite so destitute of pubescence. The outline of the elytra is continued by the thorax almost without interruption. The elytra have only indistinct traces of two lines of other punctures. The greater dullness of the upper surface arises from its being more finely and more densely coriaceous. The female is rather duller than the male.

Found only on the mountains and exposed moors of Scotland and Wales, Snowdon, Mamsoul, Rannoch, Thornhill.

Intermediate between *H. monticola* and *H. melanocephalus*, ♂, is the following:—

H. PARALLELUS, n. s.

Oblongo-ovalis, angustus, parallelus, vix nitidus, niger, antennis elongatis, piceo-rufis, pedibus rufis; thoracis disco impunctato, elytris sat crebre, satque evidenter punctatis, pubescentia fere nulla, utrinque lineis punctorum majorum duabus. Long. fere $1\frac{2}{3}$ -lin.

Antennæ rather long, the two or three basal joints reddish, the others more or less pitchy. Head pitchy-black, almost impunctate. The thorax black, with the extreme sides reddish, the sides but little narrowed towards the front, coriaceous, the middle parts impunctate, the punctures towards the sides not fine, but not deep. The angle formed by the junction of the thorax and elytra about as in *H. melanocephalus*. The elytra are narrow and elongate, almost without pubescence, distinctly, moderately closely punctured, the punctures at margins and apex indistinct; each of them with two longitudinal rows of points; the anterior four legs reddish, the posterior pitchy-red.

A single specimen found by me at Rannoch, in Perthshire.

Distinct from the preceding by its narrower and more elongate form, longer and darker antennæ, as well as by the punctured lines of the elytra and other characters. Somewhat resembling in form and colour *H. melanocephalus*, ♂, but more parallel, less distinctly punctured, with the thorax strongly margined, &c.

H. INCOGNITUS, n. s.

Ovalis, niger, thorace elytrisque fuscis, antennarum basi, capite,

thoracis lateribus pedibusque, rufis; elytris punctatis, parce pilosis, macula basali, linea laterali punctoque apicali pallidis. Long $1\frac{3}{4}$ -lin.

Allied to *H. palustris*, but larger, especially broader, with the pale markings less developed and not so distinct from the ground colour; moreover, the whole is of a different form, and in this respect approaches *H. erythrocephalus*. Antennæ yellowish-red at the base, the external joints more or less marked with pitchy. Thorax pitchy with the sides paler, somewhat shining, scarcely pubescent, the sides gradually narrowed from the anterior to the posterior angles, the base, especially towards the sides, closely and distinctly punctured, the disc more finely and sparingly. The elytra are of an obscure brownish colour with a blotch on each side of the scutellum pale, the lateral margins are yellowish at the shoulders, but beyond this, dark, near the sides a little beyond the middle is to be seen a pale narrow line, and just before the apex is another indistinct pale mark. The punctuation of the elytra is rather more distinct than in *H. palustris*, the pubescence rather finer and more sparing. The legs are reddish-yellow.

I have found this species in several parts of Scotland, and also near Cambridge, and it has also been found and distinguished as a new species by Mr. Rye.

This species is undoubtedly closely allied to *H. palustris*, but among a fine series of varieties of that variable species, I find nothing to connect the two. It may perhaps prove to be *H. vagepictus*, Fair., but I cannot reconcile it satisfactorily with the description of that species.

OBS.—It may not be out of place to remark here that I agree with the opinion expressed by the late Dr. Schaum as to *H. tinctus*, Clark, and *H. derelictus*, Clark, viz., that they are respectively varieties of *H. palustris* and *H. erythrocephalus*.

H. UNISTRIATUS, Schrank. This little species has before been in the British lists, but has been removed as having been incorrectly introduced. It must, however, be restored, as Mr. Crotch has recently taken a pair in Norfolk.

AGABUS TARSATUS, Zett.

melanarius, Aubé.

This fine and distinct species is to be placed near *striolatus* and *melanarius*, the upper surface being covered with fine irregularly anastomosing striæ. It is not likely to be confounded with any of our species. About the size and colour of *A. guttatus*, rather broader however, and with an obscure paler dash at the side of each elytron near the apex.

A single specimen is in Dr. Power's collection, taken, I believe, by Mr. Syme in the Orkneys. The species is widely distributed over Europe, but is everywhere scarce.

Thornhill, Dumfries,
July, 1869.

DESCRIPTION OF A NEW SPECIES OF *EPITOLA* (*LYCÆNIDÆ*).

BY W. C. HEWITSON, F.L.S.

EPITOLA TERESA, n. sp.

Upper-side (♂): Brilliant ultramarine blue. Anterior wings with the costal margin and apex broadly dark brown, and a large spot of rufous-brown (bordered above with blue) at the end of the cell. Posterior wings with the apex dark brown.

Under-side: Anterior wings from the base to beyond the middle dark brown, marked between the discoidal nervures by some irroration of blue; crossed beyond this by a band of six white spots: the base of the costal margins and apex rufous. Posterior wings rufous, with the base orange, marked, as in *Acræa*, by several round black spots: crossed by a band of white, which commences on the costal margin below its middle, and, crossing the third median nervule, runs parallel to the second nervule to the outer margin, forming an obtuse triangle; the nervules and lines between them dark brown.

Alar. exp. 2 inches.

Hab. Africa (Cameroons).

In my own collection.

This species is especially interesting, as the imitator in its family (*Lycænidae*) of the great African group of the *Acræidae*.

Oatlands, Weybridge,

August, 1869.

[The species of *Leptalis* described by me at page 68 of the present volume was misprinted *Desine*: it should have been *Deione*.—W. C. H.]

Occurrence in Britain of Lepyrus binotatus, a genus and species new to our lists.—A single specimen of a Rhynchophorous beetle, which has been identified by Messrs. Smith and C. O. Waterhouse of the British Museum as *Lepyrus binotatus*, was taken in June last by a friend of mine at Minley, in Hampshire. It was found on a dusty road, the adjoining plants being silvery birch and broom.—F. ALFRED BLACK, Greenhill, Harrow, July, 1869.

Occurrence of Mordellistena brevicauda, Boh., in Britain.—On examining certain *Mordellidæ* taken in June last by me at Folkestone, I find that the insect I had *primo visû* considered to be *Mordellistena pumila* is apparently *M. brevicauda*, Bohem.; in fact, I can detect only a single specimen of the common *pumila* out of a considerable number of specimens. *M. brevicauda*, compared with *M. pumila*, appears to be larger, especially broader and not so shining; its thorax is not so long, with the base less strongly sinuate on each side and the hinder-angles rather obtuse and not acutely produced, and its pygidium is not very much longer than the apex of the abdomen, whereas in *pumila* it is very conspicuously attenuated

and elongated. Thomson (Sk. Col., vi, 297), besides these characters, states that *pumila* has 3 striæ on the tibiæ and first joints of the tarsi of the posterior legs, whilst *brevicauda* has 4 striæ on the same relative members. These striæ run obliquely from the upper ridge and cross the outer side of the tibiæ and tarsi, and are not very easy of definition in all lights; on careful examination, indeed, in certain positions, more than the specified number can be seen in each case,—but I find that in the insect I suppose to be *brevicauda* there are more than in *pumila*, as there should be.—E. C. RYE, 7, Park Field, Putney, S.W.

Capture in Britain of Hydroporus discretus.—At the joint excursion of the Berwickshire Naturalists' Club and the Dumfries and Galloway Natural History and Antiquarian Society to Newcastleton, in Roxburghshire, on the 29th of July last, I took *Hydroporus discretus*, Fairm. Dr. Sharp informs me that it agrees with the specimens already captured by him, and brought forward among other *Hydradeephaga* in an earlier part of the present number.—W. R. McNAB, Southern Counties Asylum, Dumfries, August 1869.

Note on new British species of Anthonomus.—In the 2nd part of M. J. Desbrochers des Loges' Monograph of the European *Balaninidæ* and *Anthonomidæ* (Ann. de la Soc. Ent. de France, 1868, p. 411 *et seq.*) are descriptions of certain species interesting to English Coleopterists, and to which I will now briefly call attention.

Anthonomus pubescens, Payk., Gyll. No reference is made to Britain as a locality for this species, which appears in Waterhouse's Catalogue with a query; but there seems to be no doubt that the insect taken at Rannoch by the late Charles Turner, and represented by Mr. Waterhouse's queried species, is *pubescens*, Payk.

Anthonomus britannus, des L., l.c., 429. This species, attributed solely to England, appears to have been described from an insect communicated by Mr. Crotch, under the name of *pubescens*, Walton. M. des Loges remarks, however, that it has only very slight resemblance to *pubescens*, Payk., being more like *pyrenæus*, sibi; and that the shortness of its rostrum (which is almost dull), its punctuation, the form of its striæ and its feeble femoral teeth easily distinguish it from its allies. The insect is shortest-ovate, convex, almost glabrous, entirely reddish-ferruginous, and smaller than any of our species. An English description of it will be found in the late Mr. Walton's Notes on *Curculionidæ* (Ann. and Mag. of Nat. Hist., 1844); from which it appears that three specimens of it were taken in Herefordshire by Mr. Doubleday.

Anthonomus Chevrolati, l.c., 430. This is described from specimens from Algiers, Lyons, the Pyrenees, England, and elsewhere. Its short convex form, the shape of its thorax (described as very transverse, slightly narrowed at the base and very much so at the apex, with the sides conspicuously rounded before the middle), the curving of the anterior fascia of its elytra towards the scutellum, and its smooth interstices, are stated to distinguish it easily from all other species resembling it in color, none of which, however, are specifically compared with it by M. des Loges.

Anthonomus ulmi and *pedicularius*. M. des Loges is anticipated by 24 years

in his remarks on the Schönherrian confusion as to these species, and in his record of examination of Linnæan type of *pedicularius*, by Mr. Walton's Notes (p. 105) above alluded to.

Anthonomus rufus, Schön. ; des L., l.c., 436. This species, found in the greater part of Europe (England being specified), is stated to be often confounded with *ulmi* and *pedicularius* in collections, but to be easily distinguishable by its very cylindrical and smooth rostrum.

Anthonomus conspersus, (Rey) l.c., 445. Occurs in England, amongst other localities, and appears to be closely allied to *pedicularius*, from which it is stated to differ in being always smaller, of a very dark tone, and narrower and more parallel form. Numerous other minute differences will be found in M. des Loges' Monograph.

Anthonomus incurvus, Panz., des L., l.c., 451. Also referred to England, amongst other localities. It appears to be very closely allied to *pomorum* (especially the var. of the latter, in which the fascia of the elytra is not well defined), but to be shorter than that species, more obtuse behind, less parallel, more convex and more abruptly sloped behind; its rostrum is less elongate, its legs lighter and more slender, and its posterior and middle femora have the notches and teeth more pronounced.

This species did not escape Mr. Walton's observations. He notes its peculiarities and the general opinion as to its not being specifically distinct from *A. pomorum*; also that it occurs in Sweden on *Prunus padus* (Bird cherry), and might be expected to be found here on that plant.

Anthonomus sp.—? I see no particular reference to any species or variety satisfactorily agreeing with the very small *Anthonomus* allied to *rubi*, but with lurid elytra, taken by Dr. Sharp and myself in damp parts of small glens near Camachgouran, Perthshire, and afterwards found to inhabit *Comarum palustre*. This insect has been supposed to be *brunnipennis*, Curtis (*obscurus*, Steph.), which, according to Walton, is nothing but an immature var. of *rubi*. He does not, however, specify any peculiarity of small size for that var., merely stating in a general way, that *rubi* varies greatly. The smallest of my Scotch specimens is, without the rostrum, under an English line in length; and there is not the least doubt that all of them are quite mature.—E. C. RYE, 7, Park Field, Putney, S.W., August, 1869.

Note on Psylliodes nigricollis.—Herr von Rottenberg, Berlin. Ent. Zeit., 1867, p. 411, records the capture of this insect, often in company with *P. chrysocephala*, and notes his inability to perceive any points of separation between them except the colour of the elytra; remarking, moreover, that specimens of *nigricollis* occur in which the *thorax* is brownish; so that even the color test is not constant. I am glad to find so entire a corroboration of my recorded views on this point.—ID.

Note on Bledius fuscipes, Rye.—Dr. Kraatz; Berl. Ent. Zeit., 1868, p. 292, records two specimens taken by the late Herr Pfeil at Stettin, agreeing with examples of *B. fuscipes* from Edinburgh. He gives superficial characters to distinguish it from *B. subterraneus* and *pallipes*, and considers it a good species. Curiously

enough, he refers to *B. fuscipes* as either very recently published or as about to be published: it appears in the Catalogues of De Marseul, and Gemminger and v. Harold; in the latter with date and place of publication, E. M. M., 1865.—ID.

Leptinus in bees-nests.—I am able to corroborate Herr Eichhoff's observations on the habits of *Leptinus testaceus*, quoted at p. 139 of the 3rd vol. of this magazine. On 29th June last, having found a nest of *Bombus pratorum* at Needwood, Staffordshire, the entrance of which I was searching, in the hope of seeing *Antherophagus*, or other parasites, to my surprise, I saw *Leptinus*, and was soon acquainted with its extreme activity in my endeavours to secure it. The following day I obtained a second specimen, while a third retreated into the hole. A lad, whom I had set on the look-out, brought me one more, and two from a nest of the humble-bee a mile from the first locality.

On the 5th of July, being about to leave home, I dug out the nest first above mentioned. It was in a cavity about a foot deep, and perhaps nine inches in diameter; and in the rubbish collected by the bees surrounding the cells were found between 40 and 50 of this strange little rarity. In the midst of the cells themselves were two *Antherophagus pallens*, together with some *Cryptophagi*. I may remark that a nest of *B. hortorum*, which was a few yards from the other, did not appear to contain *Leptinus*; this nest, however, was not disturbed.—HENRY S. GORHAM, Needwood, July, 1869.

A new locality for *Astinomus œdilis*.—Mr. John Young, of the Hunterian Museum, showed me a fine live ♂ of the above Longicorn to-day, which he had just received from a surgeon at Coatbridge, with the following words written in the box: "Found embedded in a seam of coal in No. 9, Rosehall pit, 147 fathoms from the surface."

I suppose it had emerged from some of the timber used in the mine, as I do not know of any wood near Coatbridge in which this insect is likely to occur.—THOS. CHAPMAN, Glasgow, August 13th, 1869.

Henestaris laticeps, Curt.—I have just taken this species here among Thrift (*Statice armeria*). The locality is not new, as Mr. Rye once took many specimens here, but I am not aware that the insect has been identified with the plant. This I think I have now done, for not only can I not find the imago away from the thrift, but I find the larvæ and pupæ in it.—J. W. DOUGLAS, Seaford, 7th August, 1869.

Discovery of the larva of *Sesia ichneumoniformis*.—During three weeks' stay in the Isle of Wight, I was fortunate enough to secure a fine series of this local species, after which I set to work to discover, if possible, its pupa, by splitting open stems and grubbing up roots of all plants, in the neighbourhood in which my captures were made, that were capable of containing such a larva, but without success.

Finding myself thus foiled, I watched the females in the hope of detecting them in the act of ovipositing, but in this, again, I failed, for their colours being inconspicuous they were soon lost to sight.

The third chance was to search for the ova (with the appearance of which I was already acquainted, thanks to my fair captives), and a few hours' search re-

sulted in my finding an egg deposited on the narrow leaved plantain; in this case, there was, however, no trace of any larva having fed; and its occurrence on that plant must have been accidental, for I afterwards found several eggs on the underside of the leaves of *Lotus corniculatus* and also larvæ and pupæ in the roots of the same. I have forwarded the larva to Mr. Buckler to figure and he will send a description of it to the Magazine.—E. G. MEEK, 4, Old Ford Road, E., July 30th.

Note on the earlier stages of Sesia ichneumoniformis.—The larva of this species has, until recently, baffled the researches of entomologists, both British and foreign; and has been reserved for the indefatigable Mr. Meek to make known to us. This is the second clear-wing larva he has discovered.

On July 26th, 1869, Mr. Meek sent me a larva of *S. ichneumoniformis*, and subsequently a pupa, with the mines of both in the main roots of *Lotus corniculatus*.

Its habit is to scoop out a groove or hollow channel along the side of the root, covering its back evenly with the gnawings or *débris* of frass, spun together with silk, not projecting as an excrescence, but with the outline of the root preserved; it is however, if present, readily seen where sought for, as the external covering of its mine is of a pale brownish-yellow saw-dust tint and texture, in strong contrast to the dark grey-brown colour of the rind of the root.

The larva is about half-an-inch long, rather thick in proportion to its length, the head is less flattened than usual in this genus, and the body rounded, plump and full; the second segment is the longest, and the third and fourth are rather thicker than the others, with puffed or swollen sub-divisions; the rest of the segments have rather an over-lapping tendency, and the three hinder ones taper gradually.

The head is pale brownish flesh colour, with three broad stripes of brown down each lobe, and a triangular brown patch between them; the mouth is blackish-brown.

The second segment has a semi-transparent polished plate of flesh colour, through which can be faintly seen the back parts of the head slightly tinged with brown.

All the other segments are of an uniform pale yellowish flesh colour, rather opaque, with a slight trace, here and there visible, of a darker dorsal vessel.

The tubercles are not raised, but the situation of each of them is indicated by a very fine pale brown hair. The spiracles are flesh-coloured, outlined with brown; the pro-legs same as the body; the anterior legs pale brown.

The pupa is about three-eighths of an inch long and rather flattened beneath; arched upwards rather suddenly from the sharp beaked point at the head, and rounded on the back. The abdomen at its junction with the thorax is depressed at the sides, widens gradually for about half its length, and from thence tapers towards the anal extremity, which is rather truncated. The abdominal rings have a series of minute covered hooks at their edges. The wing and antennæ cases are remarkably long, extending nearly to the end of the abdomen. The eyes appear large and projecting and are black, all the other parts being of a shining bronzy brown.—WM. BUCKLER, Emsworth, 12th August, 1869.

Note on period of appearance of larva of Polia nigrocincta.—Mr. Gregson has certainly made a mistake in his accounts of the larva of this species, when he states

that the eggs hatch in the autumn. Having reared broods of *P. flavocincta* several times, the eggs of which always hatched in April, I thought it very improbable that the eggs of such a closely allied species as *nigrocincta* should hatch in September; I therefore wrote to Mr. Stainton, asking him to refer to Freyer's account of the larva of this species and he most kindly sent me a translation of it, from which it appears that the eggs hatch in April like those of all the other species of *Polia*. This is confirmed by my friend M. Millièrè.

Freyer found the larvæ rather difficult to rear, many of them dying when full-grown.—HENRY DOUBLEDAY, Epping, August 14th, 1869.

Note on eggs of Lycæna Arion.—I think Mr. Dembski has mistaken the eggs of some other insect for those of *L. Arion*: he says they are oblong and either white or yellow like those of *Anthocaris cardamines*. The eggs of the *Lycenidæ* are round, and very closely resemble those of the *Notodontidæ*. I have never seen the eggs of *L. Arion*, but my friend Mr. Buckler informs me that they are round, rather flattened on the top and pale blue, the colour of a hedge-sparrow's egg. I believe the larvæ of all the single-brooded species of *Lycæna* hibernate, and feed in the spring till the end of May, when they assume the pupa state.—ID.

Note on eggs of Lycæna Arion.—On the 15th June, 1869, I had the great pleasure to receive from Mr. Herbert Marsden, a ♂ and ♀ *Lycæna Arion*, alive, captured by him, together, and accompanied by two small plants of *Thymus serpyllum* in blossom.

These plants were potted separately, and the insects put on one of them under a glass cylinder. During a gleam of sunshine, the ♀ certainly appeared to me to deposit an egg amongst the flowers, but the weather being cold and cloudy, I deferred further observation till the following day, when I again saw her deposit an egg, as before.

After dark I removed the butterflies to the second plant in order that I might closely inspect the first on which they had been for two days; nor was I disappointed, for, on the morning of the 17th, on looking over the blossoms with a strong lens, I detected six eggs, all laid on the calyces between the heads of flowers, but not one on either stalk, stem, or leaf.

The egg of *Arion* is round, smooth, and depressed on the top; pale greenish-blue in colour.

Although the eggs hatched both with Mr. Merrin and myself, yet we have failed to detect the young larvæ on the plants at present; but we believe they must be very small, hiding away somewhere, and that they will most likely hibernate.

I have wished to state what I have noted so far, hoping to resume my observations of this very interesting species on a future occasion.—WM. BUCKLER, Emsworth, August 13th, 1869.

Notes on Solenobia pomonæ and Xysmatodoma melanella.—It is now some ten or twelve years since I met with a large number of cases, which apparently belonged to a species of *Solenobia*, on fruit and other trees in this neighbourhood. When I first discovered the cases, I supposed them to be *inconspicuellæ*, which I knew occurred round Bristol; but, upon comparing cases of my insect with cases of

inconspicuella, I found a decided difference in form; the cases of *inconspicuella* are I think invariably three-sided, straight, and grey in colour, while those I took were round, slightly curved, and generally green.

When I first discovered them, I forwarded a supply to Mr. Stainton, who, however, thought they would prove Dipterous, and informed me that he had once found a case of apparently the same species on a plum tree.

Towards the end of June, however, moths began to appear (all apterous females), something like, but easily separable from, females of *inconspicuella*, being much yellower in colour, and with the ovipositor very much longer.

I continued every season to breed the insect in large numbers with the hope of discovering the male, but nothing appeared but females; these would lay eggs in great abundance, and the glass cylinders in which I kept them would be soon swarming with the young larvæ.

I sent liberal supplies of cases to Mr. Doubleday, Mr. Stainton, Mr. Edleston, and other of our leading entomologists, with the same result I believe in every case, viz., nothing but females appearing.

The late Mr. Weaver appears to have met with this or a similar species in North Wales, as he says in a communication to the Zoologist of 1856, "Last summer, when collecting in North Wales, I found several small cases on the rocks at Conway that were entirely new to me; they were covered with the lichen upon which the larvæ were feeding, the cases were round, and a little curved. These, when bred, produced all females, bearing a very close resemblance to *inconspicuella*."

It is, I believe, now generally understood among entomologists that there is no doubt that the economy of the genus *Solenobia* and others resembles in some measure that of *Aphis*, viz., a series of generations without sexual intercourse, the great point of difference being that the *Aphides*, being viviparous, produce their young at once; while with the *Solenobia*, eggs are laid, and the usual course of larva, pupa, and imago appears.

It has often puzzled me as to how the different species of *Solenobia* become distributed; only this day I discovered a case on a small tree not thicker than my wrist, and I know of several young trees growing quite detached from others upon which the cases abound.

I do not believe that the larva ever travels many inches from the spot upon which the eggs are laid, and the females appear quite incapable of locomotion.

Altogether the species has been a problem to me ever since I began to take some interest in it, but I am glad to say I have at last in some measure been enabled to understand a little more of its habits and economy than I used to do.

On some pear trees here I have always been able to get a supply of cases when wanted; and, upon an examination of these trees the other day by myself and my friend Mr. A. E. Hudd, we discovered that a large number of the cases were empty, the moths having emerged. A search for the imago was rewarded by the discovery of a couple of little moths we did not recognise, and therefore hoped would prove male *Solenobia pomonæ*; we, however, much to our chagrin, failed to capture either.

Next morning I renewed the search, and captured six fine specimens. I then collected a lot of the cases in a glass, and soon had the satisfaction of seeing a moth emerge. Altogether, I have bred about two dozen specimens, eight of which are apterous females, but the rest all winged; but judge of my utter astonishment when,

upon setting the specimens I had bred and captured, I found that about half my supposed males were females. Mr. Hudd has also bred all three forms.

Upon a close examination of my specimens, I was much struck by their resemblance to the description of *Xysmatodoma melanella* in Mr. Stainton's Manual, and in forwarding specimens to Mr. Doubleday I drew his attention to the resemblance, but, as I did not previously possess examples of *melanella*, I could not say positively if the specimens would be found to differ when placed side by side.

In a communication since received from Mr. Doubleday I find that my surmise was a correct one, and that *S. pomonæ*, Stainton, and *X. melanella*, Haworth, are the same, so that I presume Mr. Stainton's name will have to drop, at least as far as *pomonæ* is concerned.

It will be interesting to observe in the future whether we shall at once lose the winged form or whether we shall reach the state of all wingless females by degrees; I incline to the latter opinion, as a few years hence we could be able to feel certain of rearing a considerable per-centage of winged forms of the other species, *inconspicuella*, but of late years only apterous females appear. May we not expect that with this species also a brood of winged males and females will appear, if they have not already done so?

I do not possess a single winged example of *inconspicuella*; but perhaps gentlemen possessing winged specimens will carefully examine them, in order to find, if possible, winged female forms of that insect as well as of *melanella*.—GEO. HARDING, Jun., Stapleton, Bristol, July 13th, 1869.

[The above communication appeared to us so extraordinary, that, before putting it in type, we communicated with the writer, who says in reply that the cases from which he has bred both forms occur on some pear trees within ten yards of his house; and adds, "Strange as my communication might appear to you, I am still of opinion that my deduction is correct; at any rate it is sent in good faith, and with an honest desire to elucidate the truth on the subject."—EDS.]

Procris globulariæ, &c., at Folkestone.—I have found this tolerably abundant in one particular spot near Folkestone, from which place I think it has not yet been recorded. On the sunny slope of a hill rising from one of the numerous hollows in the neighbourhood, it was possible to take any number of them; though, from the nature of my engagements, I could never get to the spot till about six in the evening, and was then obliged to be content to take whatever specimens lingered about in the last rays of the sun. Flying with it, there was also a plentiful supply of *statice*s, and a few, if I am not greatly mistaken, of *Geryon*; but of this latter species I will not be certain until I have shown it to a better authority than myself. I caught the first specimen on the 25th of June, and at the present date they are still about. This is later than they are usually said to appear; but this must be attributed to the season, which is certainly adverse to entomologists.

T. chrysidiforme was a long time putting in an appearance, and has only been out during the past ten days, and that very sparingly, one specimen in a couple of hours being my reward in the same spot, where, last year, in the middle of June, I could take ten or a dozen in the same time. *T. Bondii* has come out during the past week or so, but, I fancy, is not so abundant as formerly.—HENRY ULLYETT, Folkestone, July 6th, 1869.

[Since I sent the above note my specimens of *P. Geryon* have been verified by Dr. Knaggs. I forgot also to state that *Nemeophila plantaginis* has turned up here. I caught several specimens in a wood in June.—H. U., 13th August, 1869.]

Captures at Folkestone.—Two days collecting at Folkestone, at the beginning of this month, resulted in my having captured the following:—In the Warren I obtained *Sesia chrysidiformis*, *S. ingrattella*, a probably new *Ephippiphora*, and a full fed larva of *S. euphorbiana*; and, along the Sandgate Road, *T. Bondii*, *D. flavidorsana*, *C. conterminana*, and *C. citrana*. *L. Adonis* swarmed everywhere on the chalk, and *S. irrorella* was sufficiently common in the Warren. Mr. Ulyett has discovered a locality there for *P. globulariæ* and *Geryon*, which both he and Mr. Purday have taken. Mr. Purday kindly took me to the spot, and I had the pleasure of seeing both species alive for the first time.—HOWARD VAUGHAN, 12th July, 1869.

Sesia chrysidiformis bred.—This species made its first appearance in my breeding cages yesterday, from larvæ I found at Folkestone last autumn. They are all remarkably large specimens.—Id.

Notes on some of the British species of Psychidæ.—I have lately bred about a dozen specimens, ♂ ♀, of *Psyche anicanella*, Bruand. It feeds on the green lichen on buckthorn stems at Hampstead. Some years since Mr. Tompkins found a larva, or rather a case, and bred from it what I believe was understood to be *salicicolella* of Bruand. I have hunted for this species ever since without success, till last year, when I first bred a ♂, and then a ♀, which latter at once overthrows the *salicicolella* theory, as Bruand's species of that name has the anal tuft of the female brown, whereas this was white.* These two species—*salicicolella* and *anicanella*—are very distinct, and different from all others save *P. fusca*, their cases being made with the materials placed crosswise, and no lengthy straws or grass are used. I send a list of the different species of these very interesting little insects that I possess, either as imagos or case. I have most of the females in alcohol.

1. *fusca*

2. *salicicolella* ?

3. *anicanella*

4. *pullella*

5. *sp.*? Larger than the last; taken
in July.

6. *intermediella*

7. *crassiorella*

8. *roborecolella*

9. *sp.*? Near the last, but with the wings
much more rounded.

10 & 11. Cases only; undetermined.

} Case made of short materials,
placed crosswise, or
irregularly.

} Case made of long materials
placed invariably
lengthwise.

ROBERT MITFORD, Hampstead, July 22nd, 1869.

[In Staudinger & Wocke's Catalogue, *anicanella*, printed in error *anicaella*, is given as a synonym of *betulina*, Zeller (1839) in the genus *Epichnopteryx*.—Eds.]

* Bruand says of *anicanella*, "the anal tuft of the female is snowy-white."—Eds.

Tapinostola elymi at Cleethorpes.—Having a few days to spare in July last, and being very anxious to take *T. elymi*, I wandered to Cleethorpes (a distance of more than a hundred miles); and, although the weather was not very favourable, I had the pleasure of turning up that rare insect. I commenced beating on the sand-hills, but what few I got by this method were very poor ones; I sugared with no success; neither could I take any flying at dusk as they appear to be very little on the wing. What good specimens I captured were found with a lantern, at rest on the sand-reed, *Elymus arenarius*, a plant upon which the larva feeds, and which some of our Botanists tell us none of our domestic animals will eat.

I have also turned up during the same month, *O. suspecta*, *A. valligera* and *litura*, *D. dispersa*, *H. dentina* and *glauca*, *M. arcuosa*, and a very striking female variety of *S. lubricipeda*.—JOHN THORPE, Church Street, Middleton, near Manchester, August, 1869.

Captures of Lepidoptera at Witherslack.—On the 4th and 13th to 15th of this month I captured the following species; those marked thus * are new to the district—*L. mesomella* 3, *L. complanula* 6, *E. porata* 1*, *Acid. inornata* 4, *L. adustata* 2, *E. alchemillata* 6, *Eup. pulchellata* 1, *E. constrictata* 12, *E. pumilata* 12, *S. undulata* 2, *C. fluctuosa* 1, *M. arcuosa* 2, *H. contigua* 1, *Botys terrealis* 1, *S. turfosalis* 2, *E. cingulalis* 2, *E. 8-maculalis* 6, *Eud. truncicolella* 16, *C. falsellus* 6, *C. pinetellus* 1*, *H. eluviella* 1, *E. semirufa* 1, *R. marmorella* 40, *P. piceana* 1, *P. praelongana* 1, *P. carbonana* 1, *Sericoris* sp.? (like *bifasciana*) 1, *E. rufana* 20, *O. antiquana* 6, *C. perterana* 2, *A. biarcuana* 2, *A. subarcuana* 1, *A. siculana* 6, *E. signatana* 1, *S. puncticostana* 1*, *D. consortana* 20, *D. n. sp.*? 8, *C. juliana*, 1*, *C. Scopoliana* 6, *Argyrolep. enicana* 1, *A.*—fine new species 4, *P. roboricolella* 6, *Tinea bistrigella* 12, *Dep. carduella*, several larvæ, *Gelechia cinerella* 3, *G. ligulella* 1, *G. dodecella* 20, *G. senectella* 20, *Par. lappella* 2, *Tinag. resplendellum* 2, *Ornix scoticella* 2, *Coleoph. Fabriciella* 6, *C. pyrrhulipennella* 6, *Elach. Gleichenella* 8, *Pteroph. parvidactylus* 2, *P. osteodactylus* 12, *P. plagiodactylus* 12, *P. tephrodactylus* 8.—J. B. HODGKINSON, Preston, 15th July, 1869.

Unnatural union.—On 15th July last, I found *Satyrus Janira*, ♂, in copula with *Vanessa urticæ*, ♀. The eggs of the latter, on dissection, were distinct, and visible, but small and not well developed.—T. ALGERNON CHAPMAN, Abergavenny, August, 1869.

Remarkable variety of Argynnis Selene.—An extraordinary var. of this species was captured by a friend of mine, Mr. H. Reynolds, at Leith Hill, Surrey, during the month of July. The wings on the upper-side are nearly all black, but there is a spot of the usual ground colour (about the size of a pea) in the centre of the hind-wings.—E. G. MEEK, 4, Old Ford Road, E.

Curious habit in a Noctua-larva.—Yesterday, when examining a stunted willow in this neighbourhood, for galls, I was a little surprised to find a larva of one of the *Noctuidæ* greedily imbibing the frothy liquid, by which the young larva of an *Aphrophora* or a *Ptyelus* is wont to protect itself.—ALBERT MÜLLER, May 24th, 1869.

Cossus ligniperda at sugar.—At Vol. i, p. 264, of the E. M. M., Mr. Barrott mentions the fact of *Cossus ligniperda* settling upon a sugared tree. I do not think that this can be a common occurrence, and like Mr. Barrett, I am unable to suggest the cause which prompted the visit. However, on the 9th of this month

while examining my trees, I captured a fine male of this species, settled on the sugar, and apparently busily engaged with it.—R. P. MURRAY, Plymstack, Plymouth, July 13th, 1868.

[Similar instances have been recorded in the "Intelligencer," and elsewhere. The *Lithosidæ*, another family with poorly developed haustellum, are also well known to frequent "sugared" trees.—Eds.]

Curious occurrence of the Wood-Leopard.—A fortnight ago twelve *Zenzeræ æsculi* came down my drawing-room chimney. They were all males. What business they had there, I cannot say. I looked in vain for a female.—W. C. HEWITSON, Oatlands, Weybridge, August, 1869.

New Rhopalocera from South America.—Mr. Buckley, who went out to South America for me, a little more than a year ago, has returned to England, after a most successful journey. He crossed the Andes from Guayaquil to Canelos; and, though very much hindered by almost constant rain, has brought home with him a very fine collection, containing, as he promised it should, 5000 butterflies, in most beautiful condition, and abounding in new and rare species. I have not yet had time to examine the whole (they are in papers), but have been delighted with the following things:—a new *Agrias*, 2 new species of *Callithea*, ten or a dozen new species of *Leptalis*, a dozen and a half new species of *Heliconidæ*, many new *Erycinidæ*, *Batesia hypochlora*, *Siderone Archidona*, *Agrias Sardana-plus*, &c.—ID.

Sphingidæ in Japan.—In Japan, I have found two species of the genus *Ino*; one blue, but otherwise similar to *I. statice*; the other smaller, and having the upper wings 5 spotted, as in *Anthrocera*. The latter appears in July, on elevated hills of 1200 feet; the former is common now, on hedge flowers. A *Sesia* has not been uncommon on warm days during the last fortnight, but I imagine the specimens have hybernated. On first emerging from the pupa, this species has densely scaled wings, which become transparent at the first flight; it is doubtless the same in the British species.—G. LEWIS, Nagasaki, 29th April, 1869.

Corrections in notes on Irish Lepidoptera.—In my notes on a visit to Ireland in the last No. of this Magazine, the species mentioned as captured at Wicklow should properly be referred to Howth; "Dallymount" is erroneously printed for "Dollymount;" and "River Armamoe" should be "River Annamoe."—T. J. CARRINGTON, York, August, 1869.

Review.

"PETITES NOUVELLES ENTOMOLOGIQUES." 1869. Paris: E. DEYROLLE, fils.

Under this title it is proposed to publish, twice each month, a sheet of "Petites Nouvelles" respecting Entomologists and their doings; *i.e.*, capture of rare species and exchange notices; movements of Entomologists; announcements of monographs in progress and books to appear; notices of collections to be sold; and general information. If it can be sustained, this will be of great service to those who wish to keep themselves *au courant* with all entomological news. The numbers already published give a variety of useful notes, and those whom it may concern will probably find it to their advantage to communicate intelligence to M. E. Deyrolle, Rue de la Monnaie, 19, Paris, for insertion in succeeding numbers.

EXCHANGES.

ARGE GALATHEA.—On Friday, July 23rd, whilst walking in the woods adjoining the parish of Randwick, I found myself surrounded by a swarm of *A. Galathea*. Most of these beautiful creatures were in fine condition, and I shall be happy to forward them to any entomologist in exchange or otherwise. Should any entomologist visit this neighbourhood, I shall be happy to take him to the numerous woods which abound here.—Rev. E. BRAUND, Cairns Cross, Stroud, Gloucestershire.

I have *duplicates* of the following insects:—*A. Aglaia*, *A. Galathea*, *V. cardui*, *L. Adonis* and *Corydon*, *H. Semele*, *C. neustria*, *X. sublustris* and *lithoxylea*; also larvae (shortly pupæ) of *S. carpinii*, and *E. jacobææ*.

My *desiderata* are *V. polychloros*, *A. Iris*, any *Thecla* except *rubi* and *quercus*, *P. Actæon*, any *Cear-wings*, *H. sylvinus* and *velleda*, *B. trifolii*, *D. coryli*, *T. cratægi*, *O. fascelina*, *L. cænosa* and *gonostigma*.—HENRY ULLYETT, Folkestone.

I have the following insects to offer for *exchange*:—*Pterophorus lithodactylus* (bred), *trigonodactylus*, *tephradactylus*, *osteodactylus* and *microdactylus*: *desiderata*—*P. isodactylus*, *Zetterstedtii*, *hieracii*, *Loewii*, *galactodactylus*, and *spilodactylus*.—WM. SIMMONS, 8, St. Mary's Terrace, Scarborough.

I have the following insects for *exchange* for any local species; my wants are too numerous to mention.—*C. ligniperda*, *G. quercifolia*, *A. aprilina*, *E. trilinearia*, *S. dealbata*, *P. Machaon*, *S. undulata*, *H. wavaria*, *B. perla*, *L. salicis*, *M. cribrum*, *H. crassalis*, *C. testata* and *corylata*, *L. didymata*, *B. rhomboidaria*, *H. prasinana*, *S. fuliginosa*, *S. tilix* and *populi*.—J. A. CLARK, 11, Duncan Place, London Fields, Hackney, London, N.E.

Duplicates.—Well set and in good condition, *Machaon*, *Edusa*, *Hyale*, *Argiolus*, *G. C-album*, *betulæ*, *Adonis*, *Semele*, *Cinxia*, *ocellatus*, *L. dispar*, *monacha*, *B. quercus*, *potatoria*, *L. salicis*, *L. æsculi*, *neustria*, *fuliginosa*, *dominula*, *quercifolia*, *carpini*, *illustraria*, *angularia*, *pictaria*, *ulmata*, *undulata*, *spartiata*, *juniperata*, *aurantiaria*, *pennaria*, *decolorata*, *multistrigaria*, *boreata* ♀ and ♂, *pinaria*, *aversata*, *suffumata*, *leucophæaria*, *diluta*, *flavicornis*, *upsilon*, *aprilina*, *nebulosa*, *lucipara*, *fimbria*, *festiva*, *hepatica*, *basilinea*, *oxycanthæ*, *vaccinii*, *plecta*, *crassalis*, *hyalinalis*, *flammealis*, *angustalis*.—G. ELISHA, 2, Cross Street, Ashley Crescent, City Road, London.

I have the following species to offer for exchange:—*C. Edusa*, *C. Helice*, *C. Hyale*, *H. Semele*, *V. polychloros*, *A. Selene*, *A. Euphrosyne*, *S. alveolus*, *S. tages*, *E. russula* ♂, *V. maculata*. My *desiderata*, which are many, contain, among others—*A. cratægi*, *L. sinapis*, *E. Blandina*, *A. Iris*, *G. C-album*, *M. Cinxia*, *T. betulæ*, *P. Alsus*, *P. comma*, *P. statice*, *T. batis*, *E. apiciaria*.—C. WOODFORD, 146, Milton Road, Gravesend.

I have *duplicates* of the following in good condition for which I shall be glad to receive offers of exchange:—*C. Edusa*, *P. cratægi*, *L. sinapis*, *A. Galathea*, *H. Semele*, *L. Sibylla*, *V. cardui* and *polychlorus*, *A. Paphia* and var. *valezina*, *Adippe*, *Aglaia* and *Selene*, *M. Athalia*, *N. Lucina*, *T. rubi*, *L. Corydon*, *Adonis* and *Ægon*, *P. comma*, *P. Geryon*, *H. dominula* (bred), *E. russula*, *A. villica* (bred), *N. plantaginis*, *T. batis*, *M. turca*, *caliginosa*, *T. fimbria*.

My *desiderata* are:—*L. Artaxerxes*, *P. Actæon*, *M. bombyliformis*, *S. hembeciformis*, *ichneumoniformis*, *culiciformis*, *philanthiformis*, *formiciformis*, *D. bifida* and *furcula*, *S. fagi*, *P. palpina*, *N. chaonia*, *dodonea*, *dictæoides*, *N. carmelita*, *P. cassinea*, *P. trepida*, *D. coryli*, *O. gonostigma*, *L. cænosa*, *L. aureola*, *L. stramineola* and *pygmeola*, *muscerda*, *O. quadra*, *senex*, *urticæ*, *T. cratægi* ♀ and *E. versicolora*.—HERBERT GOSSE, 8, Goldsmid Road, Brighton.

Exchange Lists are inserted free.

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THE
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CONDUCTED BY

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DESCRIPTIONS OF NEW SPECIES OF *LEPIDOPTERA RHOPALOCERA*,
FROM OLD CALABAR AND ECUADOR.

BY W. C. HEWITSON, F.L.S., &c.

EURYPHENE ELPINICE.

Upper-side. Female, orange. Anterior wing with two outline spots in the cell (one minute) and one at the end of the cell. Apical half black, marked by white spots; one large, irregular, trifid: a small one below this: a sub-marginal band of eight: the first two of which on the costal margin and the fourth are small, the fifth marked by a black spot, the eighth large with the centre black. Posterior wing with the nervures, an apical spot, a sub-marginal band of spots, and the margin, brown.

Under-side, pale rufous-white. Anterior wing with the spots within the cell more distinct, the larger spot bifid: an outline spot and two white spots below the cell: the apical half pale brown with the white spots as above, the sub-marginal spots each marked by a spot of black. Posterior wing with a bifid spot within the cell, an irregular band of brown before the middle, one or two triangular spots at the anal angle, some indistinct spots on the costal margin, and a sub-marginal linear band, which is bordered on both sides with white, brown.

Exp. $2\frac{8}{10}$ inch. Hab. Old Calabar.

In the collection of W. C. Hewitson.

MECHANITIS MAMERCUS.

Upper-side. Male, rufous-orange. Anterior wing crossed beyond the middle by a broad band of yellow, sinuated on its inner border, dentated on its outer border: the base of the costal and inner margins, a large triangular spot between them, four spots near the middle, the apex and a spot on the outer margin below the middle, dark brown.

Posterior wing with the costal margin, and a large space which covers half the wing, and is bounded by the inner margin, dark brown: the outer margin black, narrow.

Exp. $2\frac{7}{10}$ inch. Hab. Ecuador.

In the collection of W. C. Hewitson.

Near to *M. Mansuetus* of Hewitson; very like *M. Menophilus*, but with different neuration.

ITHOMIA VARINA.

Upper-side. Male, semi-transparent, rufous-orange: the outer margins brown. Anterior wing unusually long. The base rufous,

marked by an oblong brown spot ; crossed before the middle by a broad palmate band of pale yellow, marked by two brown spots, and divided into six parts by the nervures ; the apical half brown, with the nervures black ; the inner margin black.

Under-side as above, except that there are two minute white spots at the apex of each wing.

Exp. $2\frac{8}{10}$ inch. Hab. Ecuador.

Neuration and colour of *I. Tutia* of Hewitson.

ERESIA NERIA.

Upper-side. Male, dark brown. Anterior wing with a large triangular space of orange divided by the nervures ; the nervure which closes the cell broad and black.

Under-side, rufous-brown, with the nervures and lines between them black. Anterior wing with the basal spot as above. Posterior wing irrorated with yellow : the base yellow, and marked by two red spots.

Exp. $1\frac{8}{10}$ inch. Hab. Ecuador.

In the collection of W. C. Hewitson.

Nearest to *A. Acraëna* of Hewitson.

PRONOPHILA ALUSANA.

Upper-side, dark brown, the outer margins dentated. Anterior wing crossed at the middle by a broad irregular band of orange. Posterior wing crossed beyond the middle by a similar band of orange, broken near the apex, where a portion of it forms a triangular spot.

Under-side as above, except that the anterior wing is ochreous near the apex, which is crossed by a band of four minute white spots ; that the posterior wing is crossed before the middle by an angular ochreous band ; that the apical spot (which is much larger) is united with the band (which is slightly undulated with brown) ; and that the space between the band and the outer margin is undulated with ochreous-yellow, and has three triangular spots of lilac-white, each marked by a white spot, bordered with black.

Exp. 2 inches. Hab. Ecuador.

Nearly allied to *P. Philotera* of Hewitson.

PRONOPHILA TENA.

Upper-side. Female, dark rufous-brown. Anterior wing crossed

beyond the middle by a band of five white spots: two minute white spots near the apex. Posterior wing crossed beyond the middle by a band of four minute white spots.

Under-side as above, except that the spots of the anterior wing are smaller.

Exp. 2 inches. Hab. Ecuador.

Unlike any other species, but nearest to *P. Perita* of Hewitson.

The males of this species have the white spots much smaller, and in some specimens scarcely visible on either side.

This and the four preceding species are from the very rich collection of Mr. Buckley.

Oatlands, Weybridge: September, 1869.

ON SOME NEW AUSTRALIAN GENERA AND SPECIES OF *CURCULIONIDÆ* BELONGING TO THE *OTTORHYNCHINÆ*.

BY FRANCIS P. PASCOE, F.L.S., &c.

In Lacordaire's system, the *Ottorhynchinæ* form one of the sub-families, or as they are there called "tribes," of that portion of the *Curculionidæ* in which the mentum occupies the whole area of the mouth, and the sides of the prothorax behind the eyes are not produced into what is called the ocular lobe. The Australian beetle-fauna contains a number of genera and species almost entirely unknown, or undescribed, belonging to this sub-family, and those in my collection having the corbels of the posterior tibiæ open, and the claws free,* form the subject of the following notes. Some, in habit and colour, simulate species of *Peritelus*; others, belonging to the genus *Mylocerus*, might be easily mistaken for *Phyllobii*. Few of these insects exceed four lines in length; the scape of the antennæ is very much curved in all, and the elytra are always striate-punctate, with the interstices flattish, and often furnished with a row of more or less erect stoutish hairs; the eyes are black, and contrast strongly with the pale coloration of the scales with which these insects are covered. From their general appearance and the quiet coloration of most of them they are probably frequently confounded together and are therefore neglected; probably not a tithe of them is known. I have found it necessary to divide these insects into four genera, (exclusive of *Mylocerus*, Schön.), which may be tubulated thus:—

* The first of these characters excludes *Isomerinthus*, and the second *Merimnetes*, both genera having Australian species of very similar habit to those treated of in this paper.—F. P. P.

1. Prothorax nearly straight at the base.
 - A. Funicle of antennæ 6-jointed *PHLYDA*, n. g.
 - B. Funicle of antennæ 7-jointed.
 - b. Scrobe extending to the eye *EPHERINA*, n. g.
 - b*. Scrobe strictly limited behind.
 - Club of the antennæ pedunculate... *TITINIA*, n. g.
 - Club sessile *IDASPORA*, n. g.
2. Prothorax bisinuate at the base *MYLLOCERUS*, Schön.

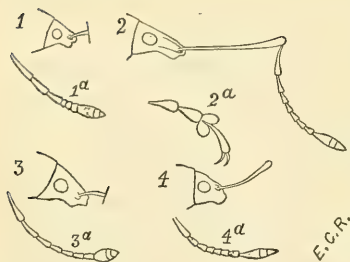
PHLYDA.

Rostrum shorter than, and nearly as broad as, the head; the scrobes very short and distinctly limited behind, placed nearly at the apex and visible from above. Eyes small, round. Scape of the antennæ curved, extending to the middle of the prothorax; funicle (fig. 1a) 6-jointed, 1-2-3-joints gradually shorter, obconic, the last three transverse; club small, narrowly ovate, sessile. Prothorax cylindrical. Elytra obovate. Legs moderate; femora thickened in the middle, unarmed; anterior tibiæ bisinuate on the inner edge, posterior with their corbels open; tarsi with the third joint broadly bilobed; claws free. Metasternum rather short. First two abdominal segments large, the first suture arched.

This genus will be readily distinguished by the six-jointed funicle. The species described below has exactly the habit of *Peritelus Schönherri*.*

Phlyda periteloides. (fig. 1.)

Closely covered with small round scales, of a whitish colour clouded



1. *Phlyda*.
- 1a. funicle of antenna of ditto.
2. *Epherina*.
- 2a. tarsus of ditto.
3. *Idaspora*.
- 3a. funicle of antenna of ditto.
4. *Titinia*.
- 4a. funicle of antenna of ditto.

with pale brown, and with three tolerably distinct brownish stripes on the prothorax; elytra shortly ovate, with well marked striæ almost obsoletely punctured, each apex rounded, and very feebly produced; body beneath and legs with greyish, somewhat silvery scales, the corbels of the tibiæ edged with black setiform scales.

Length, $2\frac{1}{4}$ lines.

Hab. Adelaide.

* This species, on account of its claws which are not united, should be separated from *Peritelus*. See Lacord., vi, p. 184, note.—F. P. P.

TITINIA.

Rostrum very short, gradually narrower above, deep at the sides; scrobes oblique, approximating, distinctly limited behind. Eyes nearly round. Scape of the antennæ nearly reaching to the base of the prothorax; funicle (fig. 4a) 7-jointed, the first joint longest the rest gradually shorter; club elongate, pedunculate at the base. Prothorax cylindrical. Elytra ovate. Metasternum moderately long. Legs and abdomen as in *Phlyda*.

The head in this genus presents a remarkable profile, owing to the vertical depth of the rostrum and the dorso-apical position of the scrobe. I have a very much worn specimen of a second species from Sydney.

Titinia ignara. (fig. 4.)*

Narrowly ovate, closely covered with grey scales, very indistinctly spotted with darker grey; head without any traces of lines or excavations, entirely scaly; antennæ extending to the middle of the elytra, black, clothed with sparse silvery hairs; prothorax a little longer than broad, the sides slightly rounded; scutellum distinct, rather narrow; elytra with the interstices of the striæ broad, each with a row of sparse, stiff semi-erect bristles; body beneath with sparsely set white scales, those on the legs greyish. Length, 2 lines.

Hab. Melbourne.

IDASPORA.

Rostrum longer than the head, moderately stout; scrobes oblique, not approximating above, distinctly limited behind. Eyes nearly round. Scape of the antennæ not extending to the base of the prothorax; funicle (fig. 3a) linear, 7-jointed, the first two joints longest, the rest sub-equal, club shortly ovate, sessile. Prothorax cylindrical, the base sub-lobed. Elytra narrowly ovate, a little broader than the prothorax at the base, shoulders scarcely prominent. Metasternum short. Legs and abdomen as in *Phlyda*.

The rostrum is longer than in either of the preceding, and the scrobes are lateral, the lower portion only of each being visible from above.

Idaspora terrea. (fig. 3.)

Narrowly ovate, blackish, clothed above and beneath with dull greyish scales; head and rostrum slightly concave in front, the latter with four indistinct raised lines; antennæ with sparse greyish hairs, the first joint of the funicle longer than the second, which is as long as the third and fourth together, club brownish; prothorax a little longer

* In the cut, the head is scarcely deep enough, and the little prominence in front is a drawback.—F. P. P.

than broad; scutellum punctiform; elytra without bristles, the scales uniform throughout; legs reddish ferruginous with grey scales.

Length, 2 lines.

Hab. Gawler.

EPHERINA.

Rostrum longer than the head, and nearly as broad, increasing a little towards the apex, which is emarginate, three raised lines above, each of the two lateral lines terminating in the raised edge round the scrobe, the middle line extending to the apex; scrobes commencing at the apex, extending backwards and gradually disappearing near the eyes. Antennæ very long, scape clavate, extending to the elytra; funicle 7-jointed, the first joint longest, the second twice as long as the third, the latter equal with the remainder; club ovate, pedunculate. Prothorax equal in length and breadth, the sides rounded. Elytra narrowly ovate. Legs moderately long; femora thickened in the middle; anterior tibiæ straight, with the inner edge sinuate; tarsi rather long, the penultimate joint (fig. 2a) broadly lobed. Metasternum long. Abdomen as in the preceding.

The above definition will probably require some modification, in the event of other species being discovered; but the general characters of the rostrum and scrobes show that the genus is very distinct.

Epherina longicornis. (fig. 2.)

Elongate, black, covered with dull greyish scales; antennæ extending to the end of the elytra; prothorax apparently constricted at the base and apex, which are of equal breadth; scutellum nearly semi-circular; elytra nearly twice the breadth of the prothorax at the base, the anterior two-thirds of the sides nearly parallel, then gradually rounded but a little produced at the apices, the interstices of the striæ with a line of whitish bristles; legs dark ferruginous, with greyish scales.

Length, $2\frac{1}{2}$ lines.

Hab. Champion Bay.

MYLLOCERUS.

Schönherr, Disp., Curc. Meth., p. 178; Lacordaire, Gen., vi, p. 213.

Schönherr gives as one of the essential characters of this genus, thorax "*postice bisinuatus*," but a few species have been admitted into it having the base of the prothorax truncate. The character is, however, so persistent in a large number of species, that it appears to me to be desirable to exclude all those in which it does not exist. The species of this genus are numerous; three are found on the borders

of the Black Sea, and, therefore, European, but the majority are from Southern India; I do not recollect seeing any in Mr. Wallace's collections from the Malayan Archipelago, and hitherto but one has been described from Australia—*M. australis*, Bois.*

The following table will assist in the recognition of the species :—

Head narrowed below the eyes.	
Scrobes approximate above.	
Prothorax as broad at the apex as at the base	<i>M. herbaceus</i> .
Prothorax much broader at the base.	
Eyes round.	
Form robust	<i>M. aurifex</i> .
Form more slender.	
Pale green	<i>M. glaucinus</i> .
Ashy	<i>M. pudicus</i> .
Eyes oblong.....	<i>M. cinerascens</i> .
Scrobes not approximate.	
Head broad between the eyes	<i>M. decretus</i> .
Head narrower.	
Elytra narrowly ovate	<i>M. aphthosus</i> .
Elytra broadly ovate	<i>M. rusticus</i> .
Head not narrowed below the eyes.....	<i>M. nasutus</i> .

Mylocerus herbaceus.

Moderately ovate, covered with pale golden-green scales with a slightly opalescent tint; head and rostrum finely punctured, the latter flattish above, with a decided angle as it descends towards the side; antennæ testaceous, clothed with fine whitish hairs, scape slender; prothorax transverse, with a slender impressed line in the middle, scarcely contracted at the apex, the base narrow; scutellum punctiform, distinct; striæ of the elytra with sharply defined, oblong, approximated punctures; beneath and legs testaceous-yellow closely covered with bright golden-green scales. Length, 2—2½ lines.

Hab. Champion Bay.

Mylocerus aurifex.

Robust, broadly ovate, pale green or yellowish with a slight golden tint, more or less mixed with patches or spots of fawn; head small, rostrum rather short and narrow, no median impressed line; scrobes approximating above and nearly reaching the eye; prothorax much narrowed anteriorly, the sides moderately rounded; scutellum comparatively large, sub-cordiform; elytra very much broader than the prothorax at its base, strongly convex; body beneath golden-green,

* From the author's short description, this insect would appear to differ from the species described beneath in having its under-surface of a silver-green.—F. P. P.

second abdominal segment as long as the first ; legs ferruginous, covered with pale greenish scales. Length, 4 lines.

Hab. Western Australia.

Mylocerus glaucinus.

Moderately ovate, covered with pale glaucous green scales above and beneath ; head small, rostrum short and comparatively narrow, with a narrow median impressed line commencing between the eyes ; scrobes approximate above, nearly reaching to the eyes ; prothorax as in the preceding, but rather longer in proportion ; scutellum much smaller, nearly round ; elytra with narrower intervals between the striæ ; antennæ and legs dull copper brown, with greyish scales and hairs. Length, $3\frac{1}{4}$ lines.

Hab. Champion Bay.

Mylocerus pudicus.

Moderately ovate, covered with pale ashy scales ; in other respects resembles the last, except that the funicle has all its joints thick and shorter, the first only excepted—the is prothorax more transverse, and the under parts are brownish-testaceous with white pearly scales. Length, $3\frac{1}{2}$ lines.

Hab. Nicol Bay.

Mylocerus cinerascens.

Slightly oblong ovate, covered with very pale ashy scales, distinctly mottled with brownish spots ; head and rostrum narrowish, the latter a little concave above, especially towards the apex, the scrobes slightly approximate ; eyes slightly oblong ; antennæ closely covered with pale ashy hairs, the scape stoutish, the two basal joints of the funicle rather elongate ; prothorax moderately transverse, the sides slightly rounded ; scutellum prominent, rounded ; elytra about a third broader than the prothorax at the base, the intervals of the striæ with a row of distinct stiffish hairs ; beneath and legs covered with pale, slightly silvery scales. Length, $3\frac{1}{4}$ lines.

Hab. West Australia.

Mylocerus decretus.

Rather broadly ovate, covered with pale greyish scales ; head somewhat broad in front ; rostrum robust ; scrobes not approximate, nor approaching the eye ; antennæ slender, first joint of the funicle only a little longer than the second ; prothorax moderately transverse, rounded at its sides anteriorly, parallel towards the base ; scutellum small, pointed behind ; elytra nearly parallel at the sides, the intervals of the

striae with a row of bristles, each bristle arising from a well-marked puncture; beneath and legs covered with greyish scales mixed with hairs.

Length, $3\frac{1}{2}$ lines.

Hab. Champion Bay.

Mylocerus apthosus.

Narrowly ovate, covered with pale yellowish-green scales having a golden tinge, and distinctly mottled with small opaque black spots; rostrum rather broad, concave for its whole length above, the scrobes not approximate; antennae ferruginous, covered with greyish scales and hairs, the first and second joints of the funicle of nearly equal length; prothorax more transverse, the sides well-rounded; scutellum broader than long; elytra parallel at the sides, the apex of each a little produced and rounded; beneath greenish-grey; legs pale ferruginous with yellowish scales.

Length, $3\frac{1}{2}$ lines.

Hab. Cape York.

Mylocerus rusticus.

Robust, broadly ovate, covered greyish-yellow scales mixed on the elytra with sparse recurved hairs; head small, rostrum short and narrow, rather deeply excavated above; scrobes oval, not approximate; antennae brown, first joint of the funicle much longer than the second; prothorax well-rounded at the sides, much narrowed at the apex; scutellum small, round; elytra shortly ovate, intervals of the striae broad, each with a line of sparse short recurved hairs, a large round spot of orange-brown on the declivity and above the apex, the latter not produced; body beneath and legs brown, clothed with greyish scales.

Length, $4\frac{1}{4}$ lines.

Hab. Champion Bay.

Mylocerus nasutus.

Narrowly ovate, everywhere covered with dull whitish scales; rostrum with a square outline above, and as broad as the head, excavated towards the apex; scrobes oblique, not approximated, having entirely a dorsal aspect; eyes rather prominent; antennae slender, the first joint of the funicle a little longer than the second; prothorax scarcely rounded at the sides, its base not much broader than the apex; scutellum slightly elongate; elytra but slightly rounded at the sides, the declivity in some specimens with a brownish tint, the intervals of the striae having each a decumbent row of narrower scales.

Length, $3\frac{3}{4}$ lines.

Hab. West Australia.

Occurrence in Britain of Epuræa silacea, Hbst.—I have in my collection an example of this fine species, the largest of the European *Epuræa*, which was given to me by the Rev. Thomas Blackburn, who captured a few specimens in agarics on a rotten birch stump, at the foot of Cross Craig, near Camachgouran, Rannoch, in July, 1866 (see Ent. M. Mag., Vol. iii, p. 94), and appears at the time to have suspected their difference from large examples of *E. deleta* (a species varying from 1 line to $1\frac{1}{2}$ lines), to which *E. silacea* is very closely allied, and from which it differs as follows: it is considerably larger (my specimen being rather over 2 lines in length), proportionably broader, entirely yellow in color (*i. e.*, there are no infusate varieties of it), rather duller, on account of its closer punctuation, and its thorax is more rounded towards the front from the lower third. In the male, moreover (to which sex my specimen belongs), the middle tibiæ are slightly widened and bent inwardly just before the apex; the corresponding members in the same sex of *deleta* being quite straight inwardly, and only exhibiting a rectangular point at the outer apex, which is obtuse in *silacea*. The apical joint of the club of its antennæ, moreover, is (though not *wider*) relatively more bulky than in *deleta*, therein approaching *E. æstiva*, from which its broader and flatter build, sexual character, less dull appearance, and the broader lateral margins of its thorax abundantly distinguish it.

Erichson (Ins. Deutschl., iii, p. 152) says *E. silacea* is moderately thickly and finely punctured, and uses a corresponding phrase for *E. deleta*; but the “*creberrime*” and “*subtilissime*” of Gyllenhal and Thomson appear to me the more correct expressions.

Of the 24 recorded European species of this difficult genus (*terminalis*, Mann., from Russia, and *rubiginosa*, Heer, from Switzerland, not practically entering into the account, as they appear to be unknown, except as descriptions) we now possess 18, I think correctly named and distinct, the only one at all likely to sink eventually being *diffusa*, Bris., as possibly a depauperized form of *10-guttata*; and most, if not all, of the remaining six may be expected to occur in this country. One of them, indeed, viz., *E. pygmæa*, Gyll., has already been reputed as British in the 2nd Ed. of De Marsen's Catalogue, probably from that species being included in Stephens' works; the exponents, however, of it in that author's collection appear to be only *E. æstiva*. But there is another and more credible British reference in Hardy and Bold's Catalogue of the Col. of North. and Durham, where (p. 46) it is stated to occur under bark of Scotch pine, and also (App. p. 247) to be common. Mr. Bold has kindly sent me examples of this insect, which must be referred to *E. obsoleta*.

E. pygmæa, according to Erichson, is the same size as *E. florea*, oblong, flattened (ovate and sub-depressed, according to Gyll.), brown, with ferruginous margins, and with the middle tibiæ of the male slightly bowed at the middle of their inner side, and somewhat widened internally at the apex. He assimilates it to *angustula*, which, however, is more linear and has a longer thorax, and simple middle tibiæ in the male.

The 17 species of *Epuræa* proper contained in Stephens are in Mr. Waterhouse's Catalogue sifted down to 8, two of which are doubtfully identified, and one, *fuscicollis*, (Wat.) Steph., is identical with the above mentioned *diffusa*, Bris., subsequently described and brought forward as a good species. Mr. Waterhouse's Catalogue contains 12 species, one of which, *E. longula*, Er., was erroneously

identified, being only a disguised *E. obsoleta*: the true *longula*, has, however, been subsequently taken by Drs. Sharp and Power and myself at Esher. It is allied to *E. oblonga*, *obsoleta*, and *floreæ*; from the first of which its darker antennal club, less linear and less flat form and stronger punctuation,—from (immaculate vars. of) the second its lighter colour, more linear and parallel form, and the much less degree of emargination, and, consequently, less prominent angles of the front of its thorax,—and from the third its darker antennal club, narrower form, and the slight anterior emargination of its thorax (which is not, as in *floreæ*, truncate), will serve to distinguish it.—E. C. RYE, 7, Park Field, Putney, S.W., Sept. 1869.

Occurrence in Britain of Mycetophagus fulvicollis, Fab.—Among some British *Necrophaga* recently sent to me for names by Mr. J. R. Hardy, of Hulme, is a damaged example of this rare and very interesting species. Its *facies* is much more that of one of the *Heteromera* (such as *Mycetochares*) than of a *Mycetophagus*; indeed, it was placed by Fabricius in his genus *Dircæa*. Having the five apical joints of the antennæ thickened, and the lateral margins of the thorax finely crenulated, it is most closely allied to *M. multipunctatus*, but is utterly unlike that species. In color it slightly resembles certain varieties of *M. piceus* (which insect, also, it about equals in length), having a black head, with reddish mouth; red thorax; [pitchy elytra, on which are two yellowish-white bands (the upper one curved obliquely backwards and not reaching the suture, and the lower one transverse, but slightly curved) with a minute light spot between them, situated on the narrow reddish-yellow margin; and reddish-yellow legs and antennæ, of which the club is darker. But its elongate, narrow shape, long pubescence, coarsely punctate-striate elytra, and thorax rather narrowest behind, at once separate *M. fulvicollis* from all its allies.

Mr. Hardy informs me that he captured the specimen above mentioned in June, 1865, in a fungus near the saw-mill at Dall, Rannoch.—ID.

Note on Otiorrhynchus fuscipes, Walton.—It will no doubt be in the recollection of the readers of this periodical, that Mr. Rye, some two or three years back (vol. ii, p. 181), raised in its pages the question as to the correctness of an elaborate paper of the late Mr. Walton's on *Otiorrhynchus tenebricosus* and *fuscipes*, Olivier. Mr. Rye's opinion was, however, immediately challenged by Mr. Smith (p. 232), who supported Mr. Walton's verdict, and made at the same time some very sagacious remarks as to the discrepancy existing between Mr. Walton's description of *O. fuscipes*, Ol., and a specimen of Dr. Stierlin's standing under that name in the British Museum Collection. Mr. Crotch at the same time expressed an opinion confirmative of Mr. Walton's, and it is with pleasure that I now add my testimony to the correctness of Mr. Walton's remarks. I have recently made careful examination of some specimens, and have no hesitation in saying that we have two distinct species corresponding most accurately with the characters laid down by Mr. Walton as distinguishing *O. fuscipes*, and *tenebricosus*. Indeed, to render Mr. Walton's remarks as to the specific characters of the two insects perfect, it is only necessary to add to them that in the male of *O. fuscipes* the longitudinal striæ of the last abdominal segment are considerably finer and more closely packed than is the case in *O. tenebricosus*. The question as to whether

O. fuscipes of Mr. Walton is Olivier's species of the same name is, however, quite another thing; this appears to have been doubted by Mr. Rye on account of his idea that *O. tenebricosus* and *fuscipes*, Walton, were but one species, while *O. tenebricosus* and *fuscipes*, Ol., are generally admitted abroad as distinct species, and also because a specimen of *O. fuscipes* sent to the Brit. Mus. by Dr. Stierlin is a distinct species from *fuscipes*, Walton. The first of Mr. Rye's reasons is, however, erroneous; and as regards the second, without expressing any very positive opinion, I will remark that it appears to me by no means improbable that the *O. fuscipes* of Olivier, Walton and Stierlin will prove to be one species, and that the specimen (in the Museum collection) referred to, has probably been hastily or erroneously determined by Dr. Stierlin.—D. SHARP, Thornhill, Dumfries, 5th August, 1869.

[Dr. Sharp, in his discovery of British males of "*O. fuscipes*" exhibiting the correct sexual character, has evidently been more fortunate than I. I have examined many specimens, including those in the British Museum, and all others that I could get to see that have passed through the late Mr. Walton's hands, and have never been able to find any males except those exhibiting the sexual character of *O. tenebricosus*. Mr. Waterhouse informs me that Mr. Walton, when engaged on those two species, separated the specimens in his collection which he supposed to represent them, and that these specimens have so remained until the present day. These also, I have recently examined, and find the males of the so-called "*fuscipes*" to be males of *tenebricosus*, with wide and coarse striations in the middle of the last abdominal segment. Dr. Sharp's idea, that the *fuscipes* in the Brit. Mus., sent by Dr. Stierlin, was hastily or erroneously determined, is negatived by that author's published description of the species in question in his monograph, with which his exponent agrees: moreover, I possess, and have seen other examples of *fuscipes* sent from different parts of the continent, all of which agree with Dr. Stierlin's insect. I cannot believe that so able an Entomologist, monographing the genus, could mistake so common and apparently well known a species. My idea that Walton's *tenebricosus* and *fuscipes* are but one species may, as Dr. Sharp observes, be erroneous, but it was arrived at after examining specimens named by that author himself—who, though noting the correct sexual character for ♂ of the former, omits reference to it in describing the latter insect. If Walton's *fuscipes* be, contrary to my opinion, rightly so named, his detection of an additional character in the relative length of the joints of its antennæ may be added to Stierlin's diagnosis.—E. C. R.]

Autalia puncticollis taken in Northumberland.—Amongst a few insects taken on Cheviot, by my friend, Mr. James Hardy, in the last week of July, are two specimens of *Autalia puncticollis*, Sharp, a beetle not hitherto recorded as found in England, I believe.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, September 19th, 1869.

Capture of *Monochamus sutor*, Linn., in Scotland.—On the 25th ulto., a specimen of this fine longicorn was captured by a workman on the timber at the mouth of one of the coal pits in this neighbourhood. It was brought to me alive the

same evening, and in perfect condition. I have not previously heard of the occurrence of *M. sutor* in the northern division of the island; though, some five-and-twenty years ago, I saw a live specimen of *M. dentator*, Fab., in Glasgow. North American timber stored at Port Dundas sufficiently accounted for its appearance. In the meantime, I presume *M. sutor* is entitled to all the immunities of a free-born native.—ROBERT HISLOP, Blair Bank, Falkirk, 4th September, 1869.

[Evidence as to the British origin of this specimen would be afforded by proof that the timber used at the coal-pit mouth was grown in this country, and not imported.—Eds.]

Capture of Iassus cruentatus.—This rare Homopterous insect has occurred to me during the present month at Witherslack, about four miles from Grange, where I have previously met with it, also a mile or two further on towards Milnthorp. It is found on *Teucrium scorodonia* in the pupal as well as the perfect state. The only places where I have seen the insect have one feature in common, namely, the presence of the yew-tree; this I mention on account of a question that was asked me respecting its habitat, and I cannot but think there is something in it, although it was in vain to beat the yews.—BENJAMIN COOKE, 119, Stockport Road, Manchester, 30th August, 1869.

On the habits of Cecidomyia salicina, Schrk., *marginemtorquens*, *Bremi*, and *salicis*, Schrk.—The reddish-yellow larvæ of *Cecidomyia salicina*, Schrank, are now making sad havoc in the tops of the leading shoots of *Salix alba* in the hedge rows of this neighbourhood.

Their attacks cause the young terminal leaflets of the shoots to wither and to form a small bud-shaped nidus, within which the larvæ, to the number of three to eight or so, pass their metamorphoses. The pupal state lasts from ten to fourteen days. When the perfect insects have left the shoots, the nidi rapidly wither away, turning brown, and at last drop at the slightest movement of the branch. Their presence must exercise a check of considerable influence upon the growth of the shoots of the year, but probably a beneficial result accrues to the plant as well, as the sap which would have served to push the young shoots on, will help to strengthen the old wood instead.

But as in the plantation of hedges an equal growth is generally aimed at, the temporary mischief done by these midges cannot but annoy the proprietor, as it gives to the hedges a straggling look, caused by the remaining behind of so many young shoots and their unsightly appearance.

C. marginemtorquens.—The close dependence of many insects upon vegetation, and the nicety and care displayed by the laying females, in the selection of certain individual plants in preference to others of the same species have, at all times, offered to naturalists an inexhaustible field of observation.

With gall-makers of various orders, I have hitherto found it to be a prevailing rule, that so far as ligneous plants are concerned, stunted shrubs or trees, or else such as are impoverished by the effects of external injuries or old age, are chosen for the deposition of eggs in preference to sound healthy ones. Plants growing in hedges are also more liable to be attacked than isolated ones.

That the former is done in compliance with a general law can hardly be doubted, when we consider how effectually and persistently this singling out of weak specimens is carried out, for the evident purpose of their ultimate destruction and replacement of healthier individuals.

As a case in point, I offer in this paper an account specifying the long continued attacks of *Cecidomyia marginemtorquens*, Bremi, on a plant of *Salix viminalis*.

My diary records that—

1866, August 3.—I found the marginal rolls of this *Cecidomyia*, coloured alternatively red and yellow, in great numbers on the leaves of a straggling bush of *Salix viminalis*, in the hedge-row of a garden at Penge. The willow has a ragged appearance, branches have been violently torn off, the bark removed in parts and the leading shoot is destroyed. The bush looks as if it had suffered repeatedly by the ruthless passage of man and beast, it being situated in the weakest part of the hedge.

1866, August 17.—Still abundance of tenanted rolls.

1867, May 22.—Same willow in the hedge nearly trodden down by cattle. Fresh rolls on many leaves of the intact shoots.

1868, June 5.—Plenty of rolls on the willow in the hedge on the few branches remaining; many shoots are clipped off.

1868, June 7.—Bred from such rolls both sexes of *Cecidomyia marginemtorquens*, Bremi, in numbers.

1868, September 27.—Noticed chains of fresh rolls on the same bush in abundance.

1869, May 23.—Found first leaf this year bordered with several rolls on each side.

1869, July 25.—Rolls in excessive numbers; majority of leaves thus infested. Scarcely any young shoots of the year growing healthily.

During all these years I have diligently searched the other bushes of this willow in the same hedge for these galls, but can find none. In one of the neighbouring gardens there grows a fine tall tree of the same *Salix*; thinking that the straggling bush in the hedge might annually receive its settlers from there, I have repeatedly, and at various times of the year, examined it, but always with a negative result. Hence I am driven to the conclusion, that having accidentally been peopled with this gall-midge from a distance, this straggling bush, although plenty more grow near, is annually fixed upon by the laying females as the most suitable for their purpose, and will eventually succumb to the ravages of their progeny as one brood of larvæ succeeds the other, at intervals of about four weeks from May to October, the last brood hybernating in their cocoons in the fallen leaves till spring.

C. salicis.—From galls, encompassing some twigs of the preceding year's growth of a plant of *Salix cinerea*, collected near Penge, on the 11th October, 1868, I bred a few specimens of this midge on the 26th June, 1869. In this particular instance each gall harboured but one larva, and all I met with were full fed or nearly so. They remained in their larva state until the middle of

June of the present year, when, *without spinning a cocoon*,* they turned to pupæ within the galls. The mature pupa (examined 15th June) was $1\frac{1}{2}$ -lin. long, its head, thorax, and all appendages pitchy-black, shining; abdomen dull tile-red, its back very rough. The basis of each feeler-case is provided with a sharp pointed tooth; two slender, tapering respiratory tubes stand behind the feeler-cases on the thorax.

When emerging, the pupa forces its way out of the gall by a series of wriggling, boring movements, until about half of its length is disengaged; the usual process of splitting the back of the thorax in a horizontal and afterwards vertical direction, as well as the gradual freeing of the head and limbs follow; and, when quite liberated, the imago discharges a drop of milky liquid.

The filmy white pupa-case is left protruding from the gall.—ALBERT MÜLLER, South Norwood, S.E., 16th August, 1869.

Yellow female of Colias Hyale.—In a letter which I received a short time since from Colonel H. Macchio, of Vienna, he says,—“I have reserved a yellow female *Colias Hyale* for you.” I believe many of these yellow females have been passed over in this country for males, as, among the small number of specimens of this butterfly which I saw last year (not more than thirty or forty), I found four of them. The ordinary female of *Colias Palæno* is white; but I have three of the same greenish-yellow colour as the males.—H. DOUBLEDAY, Epping, August, 1869.

On the larva of Pyralis glaucinalis.—To the Hon. T. de Grey I am indebted for the opportunity of figuring and describing the larva of this species, he having found it in the manner he has detailed in the following note:—

“Thinking that the nest-like bunches of twigs, which may often be observed “growing at the ends of branches on birch trees, might perhaps be tenanted by “some larvæ or pupæ, I obtained one of these knots in April, 1867, and placed it “in a large breeding cage, where I soon observed a few black active-looking larvæ, “and some old cocoons containing empty pupa skins.

“Having no conjecture as to what species these belonged to, I was much “interested by observing on the 10th of June, a specimen of *Pyralis glaucinalis* at “the side of the breeding cage; others continued to appear, and on June the 13th, “I find a note in my diary, ‘Larvæ, pupæ, and imago of *glaucinalis* all alive at “same time.’

“On the 24th of June, I took out the knot, and by shaking and beating it “obtained from it twelve specimens which were by no means easily dislodged.

“The species continued to appear throughout June and part of July, till about “forty specimens in all were bred from this one large birch knot.

“This year (1869) I again obtained knots from the same locality as before, “and found them to contain old cocoons, and larvæ of the same species in various “stages of growth; from these I bred a few specimens of the perfect insect about “the middle of July.

* Winnertz (Linnæa Ent., vol. 8, p. 216), records, that this *Cecidomyia* turns to pupa in a web within the gall. I could not detect the slightest trace of any web or threads whatever. The pupæ were lying simply in a cavity of the gall.—A. M.

"The clean white silken cocoon is semi-transparent, and of a texture which strongly reminds one of the skin immediately beneath the shell of an egg, only that the silk is less opaque: it is placed *among* the twigs towards the centre of the branch, but *not attached* to them, although the webs of the larvæ among the frass, and also of the numerous spiders which it contains, prevent the possibility of shaking it out: in spite of this, however, it is always quite clean."

On the 18th of April, 1869, Mr. de Grey kindly sent me several larvæ with their food—that is to say, a mixed mass of birch twigs, decomposed leaves and earthy matter containing many old cocoons and pupa cases, some small tufts of sheep's wool, and an old gun wad.

I separated this mass to look for the larvæ, but found that they immediately began again to construct loose silken galleries and thus re-united the various materials of which it was composed.

At this date the youngest larva was about half-an-inch long, of a dull pale brownish olive-green; others were larger and darker, the colour darkening with the growth, until the full grown larva was almost black.

When full grown, the length is from $1\frac{1}{12}$ to $1\frac{1}{8}$ inch; the form moderately slender, cylindrical, nearly uniform in bulk throughout, the hinder segments tapering a little at the sides; the region of the spiracles puffed and wrinkled; the segmental divisions deeply cut.

The colour of the back is a blackish, bronzy-green, becoming paler, of an olive or ochreous-green tint along the spiracles, and on the belly and legs, the head, and the 2nd and 13th segments; the plate on the second segment is margined in front with blackish olive: a fine blackish undulating line, apparently caused by a deep wrinkle, runs along below the spiracles, which are inconspicuous, being of the surrounding colour, and merely outlined with blackish; the tubercular dots are a little raised, each bearing a fine hair; the whole surface is shining and bronzy looking.

The first mature larva spun its cocoon on the 23rd of April, 1869; the cocoon at first was soft and very flexible, of a brilliant silvery whiteness, its yielding surface readily betraying the movements of the larva within, but after a day or two, enough silk had been spun to make it firm and unyielding; its length is about $\frac{5}{8}$ -inch, its breadth $\frac{2}{8}$; in shape it is rounded at either end, very convex on both the upper and under surfaces, these curves not being continued round the sides, but meeting there in an acute ridge.

The imago makes its exit at one end, but the edges of the orifice close together again, and the pupa skin remains in the cocoon, which shows no change whatever in appearance.

The pupa is brown in colour, nearly half-an-inch long, stoutest at the thorax, and diminishing in the ordinary way to the anal point, which ended in a short spike. The old larva skin, though much shrivelled, showed it had been separated on the crown of the head and down the back, and was left in contact with the spike of the pupa.

The moths appeared on the 6th and 11th of July.—WM. BUCKLER, Emsworth.

Notes on the earlier stages of Eupæcilia ambiguana.—While collecting *Eupæcilia ambiguana* at Haslemere, at the end of May, 1868, I noticed that about sunset the females were to be seen flying about the flowers at the tops of the bushes of *Rhamnus frangula*, apparently depositing eggs. On July 27th of the same year, I found on these identical bushes, berries fastened together with silk, and partially eaten out, and in them larvæ of which the following is a description:—

Head and back of 2nd segment blackish, anal segment brown, rest of body dull pink or reddish, but so transparent that the dark contents of the intestinal canal give it a greyish tinge.

Each larva fastened several berries together, feeding only on their interior, but in some instances the silken tube was continued to a neighbouring leaf, which was folded at the side, apparently as a shelter.

I found about a dozen of these larvæ, and confined them in a jar with plenty of food. When full fed, each cut an oval piece out of a leaf of the *Rhamnus* and rolled it into a case, like that of a *Coleophora*, which it attached, by the end, to the gauze which covered the jar, and to do this some of the larvæ must have carried it several inches. One larva, however, fastened his case to a twig of *Rhamnus*, boring a little hole in the wood to fit its mouth, and this I judge to be its normal habit.

These cases I brought with me to Norwich, and watched eagerly in May for the appearance of the perfect insects, but to my great disappointment not one emerged, and on examination they were all found to have died in the larva state.

Although I feel certain that this is the larva of *E. ambiguana*, its case-making habit is so extraordinary that I cannot expect others fully to accept my conclusion, and therefore give these details in the hope that some one more fortunate may be assisted to work it out.—CHAS. G. BARRETT, Norwich.

Hydrilla palustris near Norwich.—On June 5th last, I had the good fortune to take, by means of light, a male of *Hydrilla palustris*, at a very short distance from this city. This was on one of the few favourable nights for collecting that occurred in the early part of this summer, and the succeeding and many following nights were so cold that not an insect was to be seen, and consequently the search for more of this species was fruitless, but I see no reason whatever to suppose that this individual was *accidentally* introduced, or that it will not be found to be a regular inhabitant of this neighbourhood, and therefore think that it may safely be re-introduced into our lists.

Although it bears a considerable resemblance to some of the *Caradrinæ*, particularly *C. Morpheus*, its peculiarly thin abdomen forms a striking distinction from all of them.—ID.

Acronycta alni, *Cymatophora ridens*, and *Ecophora Lambdella* near Plymouth.—Yesterday I took a larva of *alni* on dogwood in a lane near here. It was reposing on the upper surface of the leaf, as seems to be the habit of this species. In April last I took a specimen of *ridens* in my garden, and last month *Ecophora Lambdella* fell to my lot. It was flying in the sunshine on the Revelstoke cliffs, about six miles east of Plymouth. This last was kindly determined for me by Mr. Stainton.—RICH. P. MURRAY, Plymstock, Plymouth, August 19th, 1869.

Occurrence of Agrotis saucia at Edgware.—On the 8th instant, I took a pair of *Agrotis saucia* at sugar in my garden here. I fancy this insect is not often taken in the neighbourhood of London.—ARTHUR COTTAM, Stone Grove Cottage, Edgware, September 15th, 1869.

Capture of Aplecta occulta at Lee.—I have to record the capture of a single ♂ specimen of the above-mentioned insect, which I took at sugar, at the end of August. There were two other specimens of the same insect on the tree, but, before I could box them, they escaped.—JOHN T. SCOTT, 37, Manor Park, Lee, September 7th, 1869.

Notes on Chisiocampa castrensis, Mamestra abjecta, &c., at Gravesend.—On the 10th of July last we paid a visit to the banks of the Thames below Gravesend, for the purpose of collecting the larvæ of *C. castrensis*. To the fact of the day being one of unclouded sunshine, we are disposed to attribute the success which attended our search.

At 10 a.m. we commenced operations among a clump of their favourite food, the *Artemisia maritima*. At this time the larvæ occurred only sparingly, but, as noon approached, they became much more abundant, crawling up from their retreats to sun themselves on the branches of their food. After one o'clock they became much scarcer, probably owing to the number of our captures, but also in some measure to the circumstance of their retiring again to the root of the plant.

We found them in several stages of their growth, some quite small and others about to assume the pupa state, several spinning their cocoons on the journey home.

By searching among the long grass growing near the top of the sea wall, we found the cocoons not uncommon; many of these, however, especially in more exposed situations, were empty, the pupæ having been extracted by birds.

As none of the larvæ captured were ichneumonized, we presume that birds are the agents by which the excessive increase of this species is prevented.

Having the reputation of being difficult to rear, and not being able to supply the larvæ with their natural food, we adopted two modes of treatment towards them; some we enclosed with muslin on a growing plant of the garden *Chrysanthemum*, the remainder we supplied with *Polygonum aviculare*. They did equally well in both cases, and have now all assumed the pupa state.

Feeding them on the latter plant, however, involves a greater amount of trouble, as they must be supplied with fresh food daily, for if at all faded, they refuse to eat it. It is also necessary that they should be placed in a sunny situation, as they appear only to consume that part of the food to which the sun's rays have free access. The duration of the pupa state is about three weeks, the first perfect insect from the larvæ collected appearing on the 4th of this month.

At sugar at the same locality, and on the same occasion, we took several beautiful examples of *Mamestra abjecta*: also a few of *Senta ulvæ*, *Leucania obsoleta*, and a number of *Agrotis corticea*; and, by mothing, *Acidalia emutaria*, *Leucania phragmitidis*, and *L. straminea*.—C. MILLER and ALBERT H. JONES, Eltham, August 18th, 1869.

Captures of Lepidoptera at Witherslack.—On the 13th and 14th August I

captured the following species at Witherslack, viz.:—*Stilbia anomala*, *Penthina sellana*, *Orthotania ericetana*, *Tinea albipunctella*, *Hyponomeuta plumbella* (which I used to take near Gravesend 20 years ago), *Depressaria carduella*, *granulosella*, *Gelechia punctella*, *Zelleria hepariella* (amongst yew), *Asychna profugella* (also on yew), and *Bucculatrix aurimaculella*.—J. B. HODGKINSON, 15, Spring Bank, Preston, September 6th, 1869.

Colias Edusa in Lancashire.—On the 27th of August I saw *Edusa* a few miles north of Lancaster on the railway bank.—ID.

Captures of Lepidoptera in Westmoreland.—On 16th July last, I met Mr. J. B. Hodgkinson at Preston, and with him proceeded north to Grange for Witherslack, where, by sweeping amongst *Trifolium filiforme*, we took *Coleophora Fabriciella* and *Gelechia ligulella*, and, among wild thyme, *Gelechia Sircomella* and *senectella* and *Eupithecia constrictata*. Amongst mixed plants, where *Conyza squarrosa* grew freely, we found *Sciaphila perterana* and *octomaculana*, *Euchromia rufana*? and *Dicrorampha consortana*; by beating sloe-bushes, *Pædisca bilunana*, *Ephippiphora signatana*, *Argyresthia albistriella* and *Olindia ulmana*; by beating yews, hollies and junipers, *Lithosia complanula*, *Eupithecia pumilata*, *Crambus pinetellus*, *falsellus* and *geniculellus*, *Scoparia cratægella*, *cembrella*, *muralis* and *atomalis*, *Dichelis Grotiana*, *Tinea semifulvella*, *Phleodes immundana*, *Hypsolophus marginellus* and *Ephestia semirufa*; by sweeping flowery banks, a new species of *Argyrolepis*, of which more hereafter, and *Chrosis tesserana*: where *Conyza squarrosa* grew on the rocks, we took *Pterophorus acanthodactylus*; amongst wild sage, *Pterophorus Britanniodactylus* (Gregs., n. s.); amongst *Scabiosa columbaria*, *Pterophorus scabiodactylus* (Gregs., n. s.); amongst golden rod, *Pterophorus tephrodactylus*; and, where *Knautea arvensis* grew freely, *Pterophorus plagiodactylus*, and *P. fuscus* amongst *Veronica chamædrys*, whilst *Argyresthia præcocella* was beaten from junipers, and *A. Andereggiella* from apple-trees. On the moss, we got *Sericoris politana* and *Nemoria viridata*, amongst *Myrica gale*; *Gelechia ericinella* on heather; *Elachista luticomella* amongst *Dactylis glomerata*; *Elachista cerussella*, *rhynchosporella* and (last, but not least noteworthy) *serricornis* flying over or swept from cotton-grass (*Eriophorum*). This last species alone led us out to the moss, after a warning from the farmer at the "Far-a-way Farm," that "them cleggs fair druv him off t' moss-edge i' t' morning, when he wer maaing; an' nae man cud stan' um at nete:" but Mr. Hodgkinson had once taken *E. serricornis* on Witherslack moss, so away we went. The cleggs and midges *did* bite, nay, fairly covered us; and, after about two hours' suffering, both of us having taken the long desiderated species, we retreated in good order, and, by dashing into the long grass and reeds growing in the ditches of the drained land, obtained relief from our tormentors. Soon we turned our attention to the Valerian plants growing on the banks of the ditches, and on them found the larvæ of *Eupithecia valerianata* from just hatched to full fed; these we secured in plenty, and slept that night the sleep of the tired-out but contented naturalists.

NOTE: there are two or three critical species amongst our captures that may form the subject of another note when they come off the setting boards.—C. S. GREGSON, Rose Bank, Fletcher Grove, Stanley, Liverpool, 20th July, 1869.

Note on names and food of some species of Plicatæ.—*Scoparia cratægalis* (*cratægella*, Hub.)—This name implies that the larva of this species feeds upon the haw-thorn (*Cratægus oxyacantha*). Nothing can be more injurious to entomological science or to our progress than to give an insect a name from a plant it does not feed upon; a recent instance of this is afforded by *Scoparia ulmella*, the specific name of which appears to have misled one of our most acute practical friends (see Ent. M. Mag., Vol. 6, p. 41). Having bred most of the genus *Scoparia*, as at present constituted, I may say that so far as I know they feed exclusively upon hepatics, mosses, lichens, and *algæ* (*Confervæ*). Thus, *Scoparia cratægalis* feeds upon *Hypnum elegans* and *Jungermannia dilatata*; as do also *S. cembrella* (*cembrae*, Haw.) and the old *mercurella* (*mercuralis*); *muralis* (*murana*, Curtis) feeds upon *Grimmia pulvinata* (the cushion-moss), in company with *Crambus falsellus*; *S. lineolalis* (*lineola*, Curtis) feeds upon and lives under *Parmelia parietana* and *P. olivacea*, lichens which grow upon rocks and old thorns, &c.; and *S. resinalis* (*resinea*, Haw.) feeds upon *Stigoneura mammosa* and *Oscillatoria autumnalis*, living in galleries under the *Conferva*, and also on *Bryum cespitosum*, when growing, as this moss frequently does here, amongst the above *Algæ* at the bases of damp walls, &c., on road sides. That some of these species eat other allied plants I know, but I am not aware of any *Scoparia* or *Crambus* which finds sustenance upon trees or shrubs, except that the mosses and lichens they eat sometimes grow upon them and that the perfect insect often shelter upon or amongst their foliage: they have no connection with any arboraceous plants as food; and, thinking that these hints may be useful to any young friend who may venture into the little known question of the food of our *Plicatæ* or *Crambidæ*, or both, I may say, “don’t look for larvæ of *Scoparia cratægalis* on hawthorn hedges, or for those of *Crambus pinetellus* upon fir-trees, but rather upon the lowest order of plants.”—ID.

[We cordially agree with Mr. Gregson, that it is most undesirable to form specific names of insects from those of plants, on the bare supposition that the larvæ feed on such plants, and that few things are “more injurious to science.” But why, does he, with so keen an appreciation of purity in nomenclature, ask us to print such names as “*Britanniodactylus*” and “*scabiodactylus*” (see his former communication)? On the continent, hybrid names (half Latin, half Greek), such as *punctidactylus* and *parvidactylus* are universally ignored in the published Lists; and Mr. Gregson must be prepared to see his species above quoted share the same oblivion as “*Millieridactylus*,” “*Schmidtiformis*,” &c.—EDS.]

Note on period of appearance of larva of Polia nigrocincta.—Mr. Doubleday says I have made a mistake in my “accounts” of the larva of this species. I can only repeat my statement, that with me the eggs obtained at the Isle of Man hatched as reported at p. 64, vol. vi, Ent. M. Mag.; that the larva is there described, as accurately as I can “word-paint,” in its various stages, and in every way correctly; and that from it was produced the insect known to us as *Polia nigrocincta*.

By a mistake in punctuation, in line 5 of p. 65 of the above-mentioned vol., I appear to state that this larva makes its puparium “during the day-time;” that expression was intended by me to refer to the preceding sentence, in which its habit of concealing itself is referred to. At line 11 of the same page, also, “Duchan” should be “Onchan.”—ID.

Scarcity of insects in 1869.—From letters I have received from my correspondents, and from notices which have appeared in various Natural History periodicals insects (at any rate so far as *Lepidoptera* are concerned) appear to have been unusually scarce this season. If this be the rule, I think this neighbourhood is decidedly an exception, as, although insects cannot be said to have been particularly abundant, I consider we have had a fair average season. Several notices have appeared in the "Entomologist" on the great scarcity of the *Pieridæ* in the south, and the Editor of that periodical seems to think this to be the case generally throughout the country. *Rapæ* we have had in plenty, though I do not recollect noticing so many of *brassicæ* as usual. Larvæ of *Dicranura vinula* have been more numerous this season than I ever noticed before; I have repeatedly had them brought to me as "remarkable creatures" from widely separated parts of the district. Spring insects were rather scarce, probably owing to the wet winter having destroyed the pupæ, but taking the season as a whole, I think the Lepidopterists here will agree with me that they have no cause for complaint.—GEO. T. PORRITT, Clare Hill, Huddersfield, 4th September, 1869.

[White Butterflies (especially *brassicæ*) have certainly been unusually scarce this year in most parts of the country; and notably so, as compared with their extreme abundance in 1868, when our cabbage-gardens, from their ravages, made an unsightly exhibition of skeletonized leaves.—EDS.]

The larva of Bombyx quercus will eat heather.—I have once or twice been asked by correspondents "Will the larva of *quercus* eat heather?" and this season, having collected on the Lancashire coast a few larvæ of that species, have had an opportunity of satisfying myself on the point.

On supplying them with heather (*Calluna vulgaris*), they immediately began feeding with apparent relish, although an abundance of fresh hawthorn (on which they had previously fed) had just been taken out of the cage. Of course it is well known that *callunæ* will eat almost anything that *quercus* will.—ID.

Variation in Zygæna filipendulæ.—Out of some fifty specimens of this insect bred from pupæ, I have three varieties. The most extraordinary is of a splendid orange-colour instead of red. Two others had one under-wing red and the other orange.—W. JAGGER, St. Ives, Hunts, 20th July, 1869.

The Entomological Society of London.—The first meeting of the next session of this Society will be held in the rooms of the Linnean Society, in Burlington House, on Monday, the 1st of November. Instituted in 1834, the Society has, by its publications, obtained a standing second to no kindred association in Europe; but it scarcely receives the support from active entomologists which it deserves, especially when the advantages connected with it are duly considered. The present forms a favourable opportunity to gentlemen wishing to enter its ranks. Any information respecting the Society will be readily afforded on application to either of the two Secretaries (Mr. J. W. Dunning, of 24, Old Buildings, Lincoln's Inn, W.C.; or Mr. R. McLachlan, of 20, Limes Grove North, Lewisham, S.E.) The Anniversary Meeting will take place towards the end of January, 1870; but Members or Subscribers joining before that time, will not be called upon for any Subscription for the remainder of the present year.

NOTICE OF A NEW ORDER OF HEXAPOD INSECTS.

BY PROFESSOR J. O. WESTWOOD, M.A., F.L.S.

In the course of last year, Mr. H. Denny placed in my hands for examination a parasitic insect, found upon the beaver, which seems at first sight half-way between a flattened flea and a diminutive cockroach, and which has proved to belong to none of the recognized Orders of hexapod *Annulosa*. I read a description of this insect, under the name of *Platypsyllus castorinus*, before the Ashmolean Society of Oxford, during Michaelmas Term, 1868; but, as that Society is very dilatory in publishing its Proceedings, I send a short notice of the characters of the insect for publication in 'The Entomologist's Monthly Magazine.'

Order, ACHREIOPTERA, Westwood.

Corpus ovale, valde depressum, coriaceum, setigerum.

Os (mandibulis?) maxillis, labio palpisque quatuor instructum.

Antennæ laterales, postice reflexæ, tri-articulatæ, articulo ultimo (ut in Pulice) annulato.

Prothorax magnus, scutiformis, margine postico sinuato.

Mesothoracis scutellum triangulare.

Alæ anticæ coriaceæ, planæ, venis carentes, breves, coalitæ, basin abdominis attingentes; sutura recta.

Alæ posticæ obsoletæ.

Pedes cursorii (saltatorii?), tibiis calcaratis, tarsis quinque-articulatis, bi-unguiculatis.

Metamorphosēs ignotæ.

Victus parasiticus in Castorem, more Pulicis.

PLATYPSYLLUS, nov. gen.

Caput horizontale, semi-circulare, angulis posticis sub-truncatis, antennis truncaturâ insertis.

Antennæ longitudine dimidium prothoracis æquant, articulo basali elongato, cylindrico, secundo cyathiformi, extus longe setoso, tertio ovali, ex annulis octo (ut in Pulice) formato.

Maxillæ motû transverso, lobis duobus apicalibus instructæ, externo majori, semi-ovali, plano, apice spinuloso, extusque densè setigero, interno tenuissimo, membranaceo, margine sub-spinuloso. Palpi maxillares quadri-articulati, articulo ultimo conico.

Mentum oblongum, corneum, jugulo transverso antice insidens.

Labium transversum, lateribus in angulum productis, margine antico

emarginato. Lingua e lobis duobus tenuissimis rotundatis formata. Palpi labiales breves, tri-articulati, conici, scapo parvo basali transverso insidentes.

Pronotum transversum, antice emarginatum, postice sensim dilatatum, lateribus curvatis, versus angulos anticos incisus (pro receptione antennarum), angulis posticis rotundatis, setis longis instructis.

Sterna tria elevata, plana, cornea, sensim magnitudine decrescentia, (haustellum magnum tri-articulatum simulantia), lateribus setis longis instructa.

Pedes robusti, compressi, cursorii, spinosi (an saltatorii ?), coxis magnis; tarsi quinque-articulati, unguibus duobus robustis terminati.

Alæ anticæ elytriformes, coalitæ, angulis posticis rotundis, suturâ rectâ. *Alæ* posticæ obsoletæ.

Abdomen semi-ovale, planum, sex-articulatum.

PLATYPSYLLUS CASTORINUS, nov. sp.

Luteo-fulvus, nitidus; capite utrinque punctis duobus (loco oculorum, marginum lateralium medium versus), sulco profundo utrinque cum margine laterali parallelo, margine postico pectinato; pronoto utrinque serie punctorum ex angulis anticis scutellum versus extensa, alteraque cum margine pronoti postico sinuato parallela; abdominis segmentis dorsalibus linea spinarum plurimarum, marginem posticum versus, ut in Pulice, armatis.

Long. corp. lin. $1\frac{1}{2}$ = 4 mill.

Habitat parasitice in Castorem canadensem.

Oxford, September, 1869.

A NOTICE OF THE *SKANDINAVIENS FJÄDERMOTT* OF
H. D. J. WALLENGREN.

BY R. C. E. JORDAN, M.D.

Through the kindness of Herr Pastor Wallengren, I have received a copy of his monograph on the Swedish plume-moths, and the diagnoses of the different genera there given have seemed to me of sufficient interest to make a notice of them worthy a place in this magazine. Unfortunately, I can only guess at the Swedish part of the monograph in a very imperfect manner, but the Latin diagnoses give details of generic characters, which, in the case of the present group, have been very imperfectly studied by English Entomologists, and therefore cannot fail to be extremely useful.

The Swedish plume-moths consist then of the following genera and species:—

1. CNÆMIDOPHORUS (Wallengren).

Antennæ of both sexes with very short cilia. Forehead without any tuft, only a few slightly prominent hairs between the antennæ. Palpi not longer than the head, the intermediate joint thickened with down, the last joint short and pointed. Legs short, all the tibiæ thickened towards the apex by a tuft of scales; the posterior tibiæ thickened in the middle. First pair of spines in the posterior tibiæ slender and very unequal, second pair nearly equal. Anterior wings not divided to a third part of their length, the segments broad, the posterior segment almost hatchet-shaped, the posterior angle of both segments well marked. The divisions of the inferior wings wide, the third segment with the anal angle distinct. The anterior wings flat, covering the inferior, the inner margin not toothed.

This genus contains only one Swedish species, found also but rarely in the south eastern part of our island, viz., *Cnæmidophorus rhododactylus*. That this insect is rightly separated from the genus *Platyptilus* of Zeller there can be no doubt; the difference in the palpi alone would be sufficient for this. The name seems taken from the thickened tibiæ; but why the diphthong should be used and the word written *Cnæmidophorus* is to me unintelligible.

2. PLATYPTILUS (Hübner.) (Zeller).

Antennæ of both sexes with very short cilia. Forehead adorned with a more or less elongated tuft. Palpi longer than the head, rather rounded, slightly ascending, with the last joint more or less elongated, sometimes a little drooping. Legs longer, slender, the tibiæ sometimes slightly thickened towards the apex. First pair of spines in the posterior tibiæ slightly unequal, second pair almost equal, shorter than the shortest spine of the first pair. Anterior wings not divided to the third part of their length, the segments broad, the posterior segment almost hatchet-shaped, the posterior angle of both segments well marked. The segments of the inferior wings more slender, the third division with the anal angle sufficiently marked, but nearer to the base. The anterior wings flat, covering the inferior when at rest. The veins of the anterior wings ten in number; 1st and 2nd separate, coming from the base, the 3rd from the posterior margin of the cell, the 4th and 5th from the posterior angle of the cell, all running into the posterior segment, the 6th coming out near the anterior angle of the cell, and running into the posterior angle of the anterior segment, the 7th two-branched, coming out from the anterior angle of the cell, and running into the apex of the anterior segment, the 8th and 9th coming out from the anterior side of the cell and running into the anterior margin of the wing, the 10th coming from the base and ending almost in the middle of the anterior margin. The cell well marked, with a very slender little transverse vein, almost straight, closed. Veins of the posterior wings three in number; the 1st coming from the base, two-branched running into the anterior segment, the 2nd three-branched, running into the second division, and the 3rd simple, running into the third division. No cell.

EXCHANGES.

I have *duplicates* of *Aglaia*, *Galathea*, *cardui* (3), *Adonis*, *Ægon* (3), *Corydon* ♂, *lominula*, *salicis*, *gilvaria* (3) passable, *chrysorrhea*, *neustria* (bred), *valligera* (2).

Desiderata.—*S. ocellatus*, *tiliæ*, *fuciformis*, *bombylifformis*, *A. Iris*, *P. Actæon*, *Paniscus*, *T. pruni*, and *betulæ*.—HENRY ULLYETT, Folkestone.

Duplicates.—*P. cratægi* ♂ and ♀, *A. Paphia*, *Aglaia* and *Adippe*, *M. Athalia*, *V. polychloros*, *L. Sybilla*, *E. Blandina*, *N. Lucina*, *P. Geryon*, *C. dominula*, *E. russula*, *C. plantaginis*, *L. dispar*, *O. gonostigma*, *T. cratægi*, *B. castrensis*, *E. versicolora* ♂, *C. reclusa*, *N. dromedarius*, *X. citrigo*, *cerago* and *gilvago*, *E. ochroleuca*, *E. nigra*, and *H. arbuti*.

Desiderata.—*H. Actæon*, *M. bombylifformis*, *S. formiciformis* and *philanthiformis*, *M. arundinis*, *N. senex*, *L. muscerda*, *aureola*, *pygmeola*, *molybdeola*, *stramineola*, *quadra*, ♀, *O. cænosa*, *P. populi*, *P. hamula*, *D. furcula* and *bifida*, *S. fagi*, *N. carmelita*, *dictæoides*, *trepida*, *chaonia*, *dodonea*, &c.—H. Goss, 8, Goldsmid Road, Brighton.

Duplicates.—*E. Blandina*, *C. Davus*, *Las. dispar*, *C. solidaginis* and *N. plantaginis*.

Desiderata.—*C. Hyale*, *A. Paphia*, *L. Sibylla*, *V. polychloros*, *T. rubi*, *T. W-album*, *T. pruni*, and the clear-wings.—J. NODEN, Spring Bank News Room, Stockport.

Duplicates.—*L. sinapis*, *C. Edusa* and *Hyale*, *A. cratægi*, *G. rhamni*, *A. Adippe*, *Aglaia*, *Selene*, *Euphrosyne*, *Paphia* and var. *Valezina*, *V. polychloros* and *cardui*, *L. Sibylla*, *H. Semele* and *Hyperanthus*, *L. Ægon* and *Adonis*, *N. Lucina*, *S. Alveolus*, *S. fuciformis*, *L. Trifoii*, *E. jacobææ*, *E. pinetaria*, *taminata*, *temerata*, *pinaria*, *C. diluta*, *A. pyramidea*, *C. cytherea*, *P. ænea*, *P. purpuralis*, *flammealis*, *fulvata*, *farinalis*, *A. pinguinalis*, *V. maculata*, *A. caliginosa*, *C. sponsa* (worn), &c.—H. RAMSAY COX, 10, Thurlow Villas, W. Dulwich, London.

Duplicates.—Pupæ of *Eup. helveticata* and *satyrata*, var. *callunaria*, also (bred) *Thera confierata*, *A. lucerneæ*, and *L. salicata*.

Desiderata.—Good specimens of *lunigera*, *agathina*, *Templi*, *Blomeri*, *cambricaria*, *neglecta*, *ripæ*, *petasitis*, *Bondii*, *phragmitidis*, *populeti*, *empyrea*, *connexa*, *cristana*, *enicana*, *latistriellus*, *geniculellus*, &c., also pupæ or imago of *Eup. coronata*, *abbreviata*, *dodoneata*, *lariciata*, *albipunctata*, *tenuiata*, *pernotata*, *campanulata*, *affinitata*, &c., and many of the *Pyralides*, *Crambites*, and *Tortrices*.—A. WILSON, 21, Young-st., Edinburgh.

I have for exchange long series of fine well set specimens of the following:—*C. Hyale*, *L. Corydon*, *L. Adonis*, *H. comma*, *Z. Æsculi*, *L. helveola*, *C. dominula*, *A. fuliginosa*, *H. pennaria*, *B. hirtaria*, *A. pictaria*, all the *Hybernæ*, *C. boreata*, *T. juniperata*, *S. undulata*, *B. glandifera*, *B. perla*, *T. fimbria*, *X. cerago*, *G. flavago*, *A. aprilina*, *A. citraria*, *H. crassalis*, and *B. hyalinalis*.—J. W. RUSSELL, 18, Mount Pleasant Road, Crouch Hill, Hornsey, late of 10, St. James' Terrace, Roman Road, Islington.

Duplicates.—*L. sinapis*, *A. cratægi*, *S. Semele*, *T. rubi*, *P. phleas*, *L. Agestis*, *L. Alexis*, *S. alveolus*, *T. Tages*, *P. Geryon*, *Z. loniceræ*, *L. salicis*, *O. pudibunda*, and many of the *Noctux*.

Desiderata.—*A. Iris*, *C. Hyale*, *T. W-album*, *T. betulæ*, *H. Actæon*, *M. fuciformis*, *C. duplaris*, *C. ridens* and *Orion*, *A. tridens*, *leporina*, *auricoma*, *aceris*, and *strigosa*.—W. EDWARDS, 1, Abbey Terrace, Great Malvern.

I have the following insects for exchange; they are all in good condition and well set. *T. W-album*, *pruni*, and *betulæ*, *H. paniscus*, *B. castrensis*, *N. angustella*, *B. hyalinalis*, *A. funerella*, and *N. Schiffermüllerella*.—W. DOWNING, Hoddesdon, Herts.

I wish to exchange pupæ of *A. Atropos* for pupæ or imago (fresh and well set) of *S. convolvuli*. Also for exchange: *M. Athalia*, *G. rhamni*, *C. Edusa*, *A. Galathea*, *V. Io*, *A. Aglaia*, *A. Selene*, *T. quercûs*, *P. Corydon*, *P. agestis*, *P. comma*, *C. diffinis*, and *C. cytherea*.

Wants.—*P. Machaon*, *L. Sybilla*, *V. polychloros*, *G. C-album*, *M. Artemis*, *T. betulæ*, *P. Arion*, *C. ligniperda*, *L. monacha*, and *S. carpini*. Offers, if accepted, replied to immediately.—The O'REILLY, 6, Denmark Terrace, Brighton.

Exchange Lists are inserted free.

THE NEW VADE MECUM (invented and manufactured by Charles H. Vincent, Optician, of 23, Windsor Street, Liverpool) consists of a Telescope well adapted for tourists, &c., to which is added an excellent Microscope of great power and first class definition, quite equal to others sold at ten times the price. Wonderful as it may seem, the price of this ingenious combination is only 3s. 6d., and Mr. Vincent sends it (carriage free) anywhere, with printed directions, upon receipt of Post Office Order or Stamps to the amount of 3s. 10d.

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BRITISH LEPIDOPTERA.

MR. J. C. STEVENS has been favoured with instructions from *W. O. Hammond, Esq.*, to Sell by Auction, at his Great Rooms, 38, King Street, Covent Garden, on Friday, October 29th, his very choice and select Collection of **BRITISH LEPIDOPTERA**, formed with great care, and containing a number of rare British specimens in fine condition; amongst others will be found authentic examples of *D. lineata*, *C. celerio*, *S. musculosa*, *C. erythrocephala*, *X. conformis*, &c., &c. Also a first-rate **MAHOGANY CABINET** of 40 Drawers, of Standish's make, and sundry apparatus, and sold in consequence of his continued ill-health. On View the day prior and morning of Sale, and Catalogues had one week prior.

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THE
ENTOMOLOGIST'S
MONTHLY MAGAZINE.

CONDUCTED BY

H. G. KNAGGS, M.D., F.L.S. E. C. RYE.

R. M'LACHLAN, F.L.S. H. T. STANTON, F.R.S.

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The species described as Swedish are *Platyptilus ochrodactylus*, *P. Zetterstedtii*, *P. nemoralis*, *P. gonodactylus*, and *P. tessaradactylus*; this latter species, which is known on the continent as *P. Fischeri*, Zell., being supposed by our author to be the *tessaradactylus* of Linné. It is probable that under *ochrodactylus* the two species *dichrodactylus* and *Bertrami* are both included, since the monograph bears date 1859, and the larva is recorded as unknown. This would make six Swedish species of this group. We have only five in Great Britain, viz., *P. dichrodactylus*, *P. Bertrami*, *P. isodactylus*, *P. Zetterstedtii*, and *P. gonodactylus*. Of these, *P. isodactylus* is apparently unknown in Sweden, and, on the other hand, *P. nemoralis* and *P. Fischeri* are not met with in Britain. The larvæ of this group are feeders in the stems of composite plants. *P. Zetterstedtii* is one of the rarest of our native plumes, and seems, as far as we at present know, to be confined to the south-western sea-board. Owing to the kindness of Mr. Doubleday, I have at present two fine specimens lent me for examination, taken by Mr. Bond on the Cornish coast; and Lynmouth is given as another locality. The Isle of Man and Ireland should be examined for this species. The larva, according to Wallengren, feeds on *Senecio nemorensis*. It must in England, of course, choose some other composite,—probably also a *Senecio*.

3. AMBLYPTILUS (Hübner).

Antennæ of both sexes with very short cilia. The forehead ornamented with a short pyramid of scales. Palpi longer than the head, thick, laterally compressed, ascending, with the last joint short, slender, and pointed. Legs slender, long, the tibiæ only in the least degree thickened towards the apex. First pair of spines in the posterior tibiæ nearly equal, longer than the second pair. The anterior wings furnished with a tooth of scales on their inner margin, not cleft to the third part of their length. The segments broad, the posterior segment almost hatchet-shaped, the posterior angle of the segments well marked. The segments of the inferior wings slender, the third segment with the anal angle sufficiently distinct, nearer the apex, furnished with a tuft of scales. The anterior wings flat, covering the posterior when at rest.

This group contains the same species in Sweden as with us, namely, *acanthodactylus* and *cosmodactylus*. Our author regards them as varieties only, a conclusion with which British entomologists will hardly agree.

4. OXYPTILUS (Zell.).

Antennæ of both sexes with very short cilia. The forehead obtuse, wanting the tuft or cone entirely.* The palpi longer than the head, thick, laterally compressed,

* Except in *Bohemani*?—R. C. R. J.

ascending, the middle joint tufted at its apex, the last joint longer than the tuft, slender, pointed. Legs long and slender, the posterior tibiæ thickened with scales at the middle, and at the apex. The first pair of spines in the posterior tibiæ almost equal, the second pair shorter than the shortest spine of the first pair. The anterior wings cleft more than the third part of their length. The segments slender, the anterior segment with no posterior angle, the posterior segment with the angle distinct. The segments of the posterior wings slender, the third segment linear, and with no anal angle. The anterior wings flat, when at rest covering the posterior; the inner margin of the anterior wings not toothed, the fringe of the third segment in the posterior wings with some black scales near the apex. Veins of the anterior wings eight in number; the 1st and 2nd separate, springing from the base, the 3rd from the posterior margin of the cell, the 4th dividing into two branches, running from the posterior angle of the cell to the posterior segment, the 5th coming out near the anterior angle of the cell, and running to the posterior margin of the anterior segment, the 6th either two or three-branched, running from the anterior angle of the cell to the apex of the anterior segment, the 7th from the anterior side of the cell, and the 8th from the base. The cell distinct, closed, the transverse vein very slender, somewhat arched. The veins of the posterior wings three; the 1st two-branched, running to the first segment, the 2nd also two-branched, running into the second segment, the 3rd simply running into the third segment. No cell.

The Swedish species of this genus are six, viz.:—1, *O. pilosellæ*, 2, *O. hieracii*, 3, *O. ericetorum*, 4, *O. obscurus*, 5, *O. didactylus*, and 6, *O. Bohemani*. Of these, two only have been as yet proved to be British, namely, *O. pilosellæ* and *O. obscurus*, although it is probable that *O. hieracii*, if not *O. ericetorum* and *O. didactylus*, will, if carefully sought for, be added to our lists. None of the lighter coloured species are met with in this list. In England we have four species only, *O. pilosellæ*, *O. teucarii*, *O. obscurus*, and *O. lætus*.

This last was added to our lists last year by the Hon. Mr. de Grey, who caught it at Thetford, a locality already celebrated for its southern types. One specimen I have (thanks to the kindness of its captor) had the privilege of examining; it certainly differs in some particulars from any specimen of *lætus* which I have seen before, yet as it is certainly most closely allied to, if not identical with, that species, it seems most desirable to call it *lætus* for the present, awaiting the decision of Professor Zeller, to whom it is referred for examination. The addition of one of the lighter coloured forms of the genus to our British lists is, however, full of interest. On the continent, the larva feeds on the flowers of *Andryala sinuata*; it is probable that here some species of *Hieracium* would be chosen.

5. MIMÆSEOPTILUS (Wallengren).

Antennæ of the male fringed with very short hairs. The frontal tuft raised into a blunt cone. Palpi longer than the head, compressed laterally, the middle joint thickened above with hairs, the last joint short, blunt, scarcely to be distinguished from the preceding. The posterior tibiæ slender, not thickened. The first pair of spines in the posterior tibiæ equal, the second pair slightly unequal. The anterior wings cleft to a third part of their length, the segments more slender, the upper one with a distinct posterior angle. The posterior lanceolate with the posterior angle not well defined. The segments of the posterior wings slender, the middle segment dilated so as to be somewhat spoon-shaped, the third or posterior division without any black scales in its short fringe. The anterior wings not perfectly flat, their anterior margin being very slightly deflexed, their inner margin without a tooth, and, when at rest, slightly deflexed, so as to embrace the posterior wings. The veins of the anterior wings ten in number; the 1st and 2nd separate from the base, the 3rd from the posterior margin of the cell, and the 4th and 5th together from the posterior angle of the cell, all running into the posterior segment; the 6th rises from the little transverse vein near the anterior angle of the cell, and the 7th, which is two-branched, rises from the angle itself, these run into the anterior segment; the 8th and 9th arise from the anterior margin of the cell, and run into the anterior margin of the wing; the 10th arises from the base of the wing and runs also into its anterior margin. The cell is distinct, closed, with a very slender, spurious, transverse veinlet, moderately curved, with the convexity turning towards the base of the wing. The veins of the inferior wings are four in number; the 1st two-branched ending in the first segment, the 2nd two-branched, ending as well as the simple 3rd vein in the second segment (this 3rd vein generally joins with the 2nd at the base), and the 4th vein simple ending in the third segment. No cell.

There are four Scandinavian species of this genus, namely, *M. mictodactylus*, *M. serotinus* (*bipunctidactylus*), *M. pterodactylus*, Linné (for Herr Wallengren believes our *fuscus* to be the *pterodactylus* of Linné), and *M. paludicola*, Wallengren. Our British species are more numerous, viz., *M. plagiodactylus*, *M. serotinus*, *M. Hodgkinsoni*, *M. Loewii*, and *M. fuscus*, five in number; it is probable, however, that much confusion exists in collections, with regard to this group. *Serotinus* and *Loewii* from different localities need special examination, and it would be conferring a great favour on me if entomologists who take any species of this genus would lend me specimens for comparison. *M. mictodactylus* should be carefully looked for in England; the larva feeds on *Saxifraga granulata*, a plant which in many localities is common in our island; and the moth flies in May and June. This plume would make a splendid addition to our lists; it is a large insect, nearly the size of *fuscus*, and more resembling *plagiodactylus* than any other of

our native species, but the ground colour of the wings is a pale ashy-brown, dark brown along the outer margin, a dark brown dash at the anterior superior angle, a brown spot or rather a dash at the fissure, and a brown dot about half-way between this and the base of the wing. No one could confuse this with any known British Plume. The larvæ of *serotinus* are stated by Wallengren to feed on *Galium* (sp. not noted) and *Scabiosa arvensis*. It is stated to have two broods, one appearing in June and the other in September and October, and the larva to be met with in May. In the south of England this species has occurred to me in May and August. The *M. paludicola* of Wallengren is thus described:—

Anterior wings above greyish-brown, darker towards the costa, the back widely bordered with ochreous. A twin brown spot at the fissure, the external border of the whole costa lined very narrowly with white, with one or two indistinct brown spots at the inner angle of the cilia of the anterior segment, and with a brown indistinct streak at the apex of the posterior segment.

As in Zeller's *Isis*, this Plume stands as *Pterophorus fuscus*, var. c., it must resemble that species very closely, but to none of a large and varied series of *fuscus* in my own collection does the description apply; several are greyish-brown instead of cinnamon-brown, and many have also a twin spot at the fissure, but none have the *whole* costa edged with white. The most remarkable specimen of *fuscus* which has fallen under my own observations was sent me from the Lake district, by the kindness of Mr. Hodgkinson. Of this specimen, the following brief description may not be out of place, as it certainly has quite the appearance of a distinct species:—

Size of a very large "*fuscus*."—Anterior wings cinnamon-brown, outer half rather more dusky than the inner portion which has an ochreous tinge, spot at the fissure replaced by a very narrow black streak beginning at the fissure and extending more than half-way towards the base of the wing, below this is another faint black streak along the fold; in the upper segment, parallel with the fissure near the apex of the wing, is another well marked black streak, fringes dusky brown, almost unicolorous, though there is rather a fainter line marking the border of the wing. At the extreme apex of the superior angle of the lower segment is a minute black dot. Posterior wings dusky brown, with fringes of the same colour.

A few words more on our British *Mimæseoptili*. *Phæodactylus* certainly does not belong to this group, nor to any of the Swedish genera, but perhaps some continental entomologist has, unknown to me, already characterised the genus. Its position is well indicated in

Staudinger's list between the *Oxyptili* and *Mimæseoptili*; it there follows *Ehrenbergianus*, a doubtful European species which I have never seen. Of the true *Mimæseoptili*, *plagiodactylus* is undoubtedly British, and was first discovered in Wales by Mr. Greening; the larva feeds on *Scabiosa columbaria*. Some specimens from the Lake district have seemed to me to resemble *M. graphodactylus* most closely.* *M. Hodgkinsoni*, discovered by Mr. Gregson, and first described in the pages of this Magazine, does not resemble any European species seen by me, and *serotinus* seems its closest ally; its food plant is unknown to me. *Loewii* is widely distributed, occurring in South Devon, in the eastern counties, and in the Lake district; it is, however, nowhere common. The larva feeds on the seeds of the pretty *Erythræa centaurium*. This, with *fuscus*, well known to haunt *Veronica chamædrys*, complete our known native species of this group. They probably want more revision than any other section of the plumes.

6. OIDÆMATOPHORUS (Wallengren).

Antennæ of both sexes ciliated, with the basal joint very much thickened. Forehead obtuse, with the scales not forming a cone. Palpi longer than the head, ascending, slender, somewhat rounded, the joints distinct, the last short, blunt. The tibiæ of all the legs thickened at the apex, and those of the second pair even thickened in the middle. The spines of the posterior tibiæ short, of the first pair unequal, of the second pair almost equal. The anterior wing cleft to the third part of their length, the segments somewhat slender, no posterior angle to the anterior segment, that of the posterior segment not well marked. Segments of the inferior wings slender, the middle segment dilated like a spoon, the fringe of the posterior segment, without black scales. The anterior margin of the upper wings deflexed, the posterior margin toothless, with the whole of the lower segment both deflexed and turned in so as to form a channel in which the inferior wings lie when the insect is at rest. Veins of the anterior wings nine in number, all simple; the 1st from the base, the 2nd and 3rd from the posterior side, and the 4th from the posterior angle of the cell, all running into the posterior segment, the 5th from the anterior angle, and the 6th and 7th closely approximated, and the 8th all from the anterior side of the cell, these run into the anterior segment, the 9th rises alone from the base. The 1st, 6th, 7th, and 8th veins are very slender. The cell distinct, closed. The transverse veinlet very narrow, arched, with its convexity turned towards the base of the wing.

The only Swedish, and the only British, species of this genus is *O. lithodactylus*. In Sweden, the larva feeds on *Inula salicifolia*; in England, on the well-known *Inula conyza* (or, as it is sometimes termed, *Conyza squarrosa*) and *I. dysenterica*.

(To be concluded in our next.)

* The larva of *graphodactylus* should be looked for on the seeds of *Gentianæ*.—R. C. R. J.

OBSERVATIONS ON THE ECONOMY OF THE BRITISH SPECIES
OF *SCOLYTUS*.

BY T. ALGERNON CHAPMAN, M.D.

1. *SCOLYTUS RATZEBURGII*, Janson. It is somewhat unfortunate that I should at the commencement of my observations be compelled (after the manner of a certain chapter "On the Snakes of Iceland") to omit any remarks upon the very first species: Coleopterists, however, are well away that *S. Ratzeburgii* has hitherto occurred with us only at Rannoch, in birch trees; and further particulars of it will, of course, be found in the "Entomologists' Annual" for 1856, p. 86, in which Mr. E. W. Janson introduced the species. All our remaining *Scolyti* I have found in this district.

2. *SCOLYTUS DESTRUCTOR*, Ol. This, the next largest in size to *S. Ratzeburgii*, and the commonest of our species, may be found early in June making its galleries of oviposition in any elm trees felled during the previous winter, and usually in such numbers as to ensure the destruction of the bark. I do not recollect to have seen it in timber smaller than 8-in. in diameter. The female makes her way along the bottom of some crack in the bark, often by widening it for some distance, before commencing to burrow, so that the real opening of the gallery is some distance from where the little heap of out-turned frass lies which marks its orifice.

The male is present for only a brief interval, viz., after the burrow is well commenced, but before any eggs are laid, and I once found a pair *in cop.* at this period. The burrow is usually about three inches long (very rarely five inches), almost always close to the wood and slightly encroaching on it. Its construction occupies about three weeks. The eggs are laid along either side close to the bark, the cavities in which they lie being somewhat irregular, not nicely fitting the egg as with *Hylesinus*. The eggs in a burrow number about 100, but I have met with more than 160 in one. They are covered by a rather thick continuous layer of frass, which also lines the floor of the burrow, and extends partially into the roof.

The young larvæ, starting at right angles to the parent gallery, which is parallel with the axis of the tree, form a very regular "typograph," at least in those somewhat rare instances, in which contiguous broods do not interfere with each other. Most of the larvæ are full fed towards the latter part of July, and I daresay that, in favourable seasons, there are sometimes two broods in a year. A certain propor-

tion assume the pupal state at the end of the larval burrows, become perfect and emerge during August; but what becomes of these beetles I do not know. I find no trace either of their ovipositing during the autumn, or of their hybernating; for, though *S. destructor* begins its burrows earlier than the other *Scolyti*, it is several weeks later than the *Hylesini* and other bark beetles that pass the winter in the perfect state. The greater number of the larvæ when full fed burrow about half-an-inch into the wood, where they form a little longitudinal chamber, the entrance of which is tightly filled with frass, and in this they pass the winter in the larval state, completing their transformations in this cavity in the spring, and emerging about the end of May. In trees with tolerably thick bark, they sometimes form their hybernacula in the latter.

The object, though not the cause, of this difference in instinct between the beetles emerging in autumn, and those remaining as larvæ until spring, is obvious.

The bark, especially when riddled by *Scolytus*, soon becomes loose from the action of the weather during the winter, and, when it falls off, birds and numerous enemies quickly remove all exposed larvæ; but those buried in the wood are quite safe, the little circles of frass marking their openings, when the wood has lost the slight staining it receives from the decomposing bark, being hardly visible, though the little patches of white wood frass in the removed bark, are very conspicuous.

I do not remember having seen a *felled* elm trunk that *S. destructor* had not attacked, frequently whilst still trying to throw out shoots; yet I have never seen a trace of it in healthy growing trees; these are supposed to resent and repel the attacks of the *Hylesinidæ* by pouring out sap into their burrows; and, in the case of *S. pruni*, I have observed burrows less than an inch long, some of which, containing a few eggs already laid, had been abandoned uncompleted by the beetles, apparently on account of the presence of a fluid which must have been sap, as no rain had fallen to account for it: these burrows had been formed in bark that was still nearly healthy, though near some dying bark which had doubtless attracted the beetles.

3. *SCOLYTUS MULTISTRIATUS*, *Marsh.* This also lives in elm, being usually found in the same logs as *S. destructor*, though also occurring in smaller ones down to four inches in diameter. It is much more scarce than *S. destructor*, one of its burrows being found for fifty of the latter insect. The burrows, similarly to those of *S. destructor*, start from the bottom of a crevice in the bark; they take a longer

diagonal course in entering the bark, before assuming the typical longitudinal direction, and though usually, do not always, lie close to the wood. Though much smaller in diameter than those of *S. destructor*, they are nearly as long, and I have seen one four inches in length. The number of eggs laid in a burrow is about a hundred; they are deposited behind a continuous layer of frass, which does not encroach on either the floor or roof. The period of oviposition is about a week later than that of *S. destructor*. I have several times found a male and a female beetle in the burrow when it was less than half-an-inch long, and before any eggs had been laid, but never after that period. The larvæ form their hybernacula in the thickness of the bark, hardly ever in the wood. *S. multistriatus* is a much less hardy insect than *S. destructor*, and of all the species of *Scolytus* I had in captivity last winter, *multistriatus* is the only species of which I failed to rear even a single specimen. Moreover, I have observed that in a state of nature, but a comparatively small proportion arrive at maturity, which to some extent accounts for its rarity. I have never observed any indication of autumnal specimens.

4. *SCOLYTUS PRUNI*, *Ratz.* I have met with this species (usually considered a rare one) in apple and pear trees, and have found its abandoned burrows in apricot. It is said to affect various fruit trees. The apple tree in which I have found it had been slowly dying, successive strips of the bark from top to bottom of the tree had died year after year, and it was in the last strip that *S. pruni* had burrowed and completed the death of the tree; I have met with traces of its having more sparingly attacked the previous strips.

Unlike the other species of the genus which make nearly uniformly cylindrical burrows (there is often a trace of a diverticulum near the entrance of *S. destructor*'s burrow), the first part of the burrow of *S. pruni* is a nearly square chamber, as if two burrows had for so far been placed side by side. I have found the male beetle in this cavity in burrows little more than begun, and in others nearly two inches long, and have no doubt that it is formed by the male beetle, who eats the reserved material as food: in none of the other species have I found the male residing in the burrow for more than a very brief period.

The remainder of the burrow is from two to four inches long, and slightly encroaches on the wood. The eggs are covered by a layer of fine frass, which usually forms merely a series of detached patches filling up the egg cavities to the level of the wall of the gallery. The larvæ almost invariably bury themselves in the wood for hybernation, and the

beetles do not emerge till spring. They are the last of the genus to appear, coming out towards the end of June, whilst *S. destructor* has been out for several weeks. This species is by no means hardy, for a large proportion of the broods die; but it is not so delicate as *S. multistriatus*.

5. *SCOLYTUS RUGULOSUS*, *Ratz.* Though hitherto accounted rather rare, this species must always be, however, more common than *S. pruni*, because it is much hardier; whilst *S. pruni* prefers large trunks, not entering wood smaller than three inches in diameter, *S. rugulosus* burrows in all, even in branches which are mere twigs, and so finds abundant pabulum, where the other insect would starve. I have never detected *S. rugulosus* in the living tree, and do not believe that either it or *S. pruni* is injurious to orchards. It comes out about a week before *S. pruni*, but is later than the other species of the genus.

This insect is notable amongst the *Hylesinidæ* for not hiding the entrance of the gallery of oviposition; in a stick infested by it the openings of these may be readily seen, whereas usually they are well hidden in some crevice of the bark, as for example is the case with *S. destructor* and *multistriatus*, in neither of which can the opening be detected, except during its formation, and then by the frass lying at its entrance. This partly depends on the fruit trees attacked often having very smooth bark.

The gallery is longitudinal and rather more than an inch in length, and is lined all round with white frass from the wood, on which the burrow slightly encroaches, and not with frass from the bark, as in the other species, making the gallery when opened very conspicuous against the dark coloured bark beside it. The eggs are laid on either side, behind the frass; their numbers seldom reach 80. When not crowded together the larvæ make a tolerably regular "typograph," and burrow into the wood to hibernate, sometimes to a depth of nearly half-an-inch.

When the bark is thick, they sometimes, like *S. destructor*, hibernate in its thickness.

6 *SCOLYTUS INTRICATUS*, *Ratz.* This species, according to my experience, is, after *S. destructor*, the most common species, and cannot be considered scarce. It seems, also, to be not so closely allied to the other species as they are to each other, having more rounded outline, and less of the typical quaint truncated form. It feeds on oak, and differs from the other species in habit, by making a transverse instead of a longitudinal gallery of oviposition, which, in comparison with the

size of the beetle, is also much shorter than theirs, being often only about an inch in length. The eggs are laid along the sides and covered by a layer of frass, which is continuous over the roof of the burrow. The eggs are fewer than in the other species, seldom exceeding 60, and averaging much less. The larval burrows often lie perfectly parallel with the fibres of the wood, for nearly their whole length of about six inches. The larva does not follow the usual instinct of the genus of burrowing into the wood to hybernate, but is satisfied with making a tolerably deep depression, so that it is exposed on removing the bark, and I observed last winter that the birds did not wait for the weather to remove the bark, but picked it off themselves to secure the dainty morsels within. I have only observed it in oak branches broken off by the wind (and not in all these), and I have never seen it in felled timber or in growing trees. It is probable that, to suit *S. intricatus*, the wood must have been cut (or blown down) for some particular time; and, as the beetle oviposits in the middle of June, only that wood is attacked which was separated from the tree at a later period than that at which oak is usually felled. An aberration of instinct of this species in confinement is worthy of notice. I placed a number of beetles with some oak sticks, and several of them formed galleries of oviposition, but one of them formed the gallery longitudinally as the other species of the genus do, which it never does naturally, and another assumed a habit of still more widely separate species of the *Hylesinidæ*, by making its burrow in the solid wood, the eggs and frass were disposed as in the normal burrow, excepting that several eggs were placed beneath the frass of the roof. In no case did I observe both beetles in a burrow, and, from what I saw, I have no doubt that pairing occurs after the burrow is commenced, but without the male entering it.

In conclusion, I may observe, that in all the species the female beetle dies in the burrow after oviposition is completed. All the species have a fashion of placing their foreheads against other individuals and giving a thrust by pushing forwards the jaws. They employ this process to remove another beetle from a station they desire to occupy: it appears, also, to be an expression of anger, sometimes two beetles having an encounter in this way, and they use the same movement in recommending themselves to the other sex.

S. destructor, *intricatus*, and *pruni*, are able to squeak audibly, by a rapid movement of the abdomen against the elytra, *intricatus* making the loudest sound.

The *Scolyti* are much infested by parasites, especially by *Hymenoptera* of the family *Ohalcididæ*; *S. pruni* and *intricatus* lose a large

proportion of their broods by their attacks, but *S. rugulosus* was, of all the species bred, the most copiously attacked. On removing a piece of bark from a stick containing them, numerous larvæ of the parasites were visible, which had devoured the larvæ of the beetles, before they had entered their hybernacula in the wood, all those that had escaped the parasites having done so.

The parasites represented at least half the broods; I bred from them half a dozen species of *Chalcididæ*, *Cheiropachus quadrum* being much the most numerous. The greater liability of *S. rugulosus* to attacks from parasites has probably a close connection with the fact I have already mentioned, that the entrances of its galleries of oviposition are very obvious.

Mr. Rye informs me he often finds *Homalota coriaria* in the wet burrows of *S. destructor*.

Abergavenny, July, 1869.

ON *CENTROPTILUM*, A NEW GENUS OF THE *EPHEMERIDÆ*.

BY REV. A. E. EATON, B.A.

A careful comparison of the mouth organs of the nymphs of nearly all the British genera of *Ephemeridæ* leads me to modify the plan of classification which I drew up last year, in one or two important particulars. The arrangement then proposed by me was based principally upon structures of the imago, which seem to serve as a test (not altogether satisfactory) of their affinities to each other.

The most considerable changes that will have to be made are the promotion of *Cænis* and *Tricorythus* to the *Leptophlebia* group, to which they seem to be closely united by means of the S. American *Potamanthus inanis* of Kollar's M.S., Pictet, 1843-5; and the reduction of *Siphonurus* to the *Cloëon* group. Whether *Oligoneuria* and *Lachlania* should accompany *Cænis* or not, is a point I am unable to decide upon without an examination of their preparatory states; and these are at present unknown. The family seems separable into three principal groups of genera:—(1) those with fossorial nymphs, with the mandible produced externally into a porrect spine; (2) those with nymphs which crawl about the river-bed, whose females, when adult, have a ventral lamina slightly produced out of the apex of the penultimate abdominal segment; (3) those whose nymphs can run nimbly about the water-plants and river-bed, and swim rapidly.

The separation of *Centroptilum* from *Baëtis* is a mere alteration in the detail of my former plan, and does not affect the general arrangement.

Genus CENTROPTILUM,* n. g.

Sp. typ. *C. luteolum*, Mül.

Syn. *Ephemera*, p., Mül., 1776.

Cloëon, p., Ste., 1835-6; *Cloë*, p., Burm., 1839.

Baëtis (Leach), section A. Etn., 1868.

Diagnosis.—Nymph agile, with seven simple pairs of undivided branchial plates. Upper maxillary palpus slender, rather long, 4-jointed, with the first joint the shortest, the second long and equal in length to the other two taken together, which are sub-equal to each other.

The sub-imago assumes the same posture as *Baëtis* when reposing.

Imago similar to *Cloëon*; but with four wings. Hind-wing very narrow, with a long costal process, and two simple longitudinal veins.

Distribution.—The Palæarctic and Nearctic regions. Two European species are described, one of which (*C. luteolum*) occurs also in the Hudson's Bay Territory. Besides these, there are an English and a Carinthian species known to me, undescribed.

Unfortunately I cannot just now lay my hands upon either specimens of the nymph or preparations of the mouth organs of *C. luteolum*; therefore I am unable to speak positively about the structure of the labium and lower maxillæ; but, so far as I can recollect, these are more like those of *Baëtis* than of *Cloëon*. The labrum is widely retuse, as in *Ephemerella*.

In *Cloëon* the palpi are two-jointed, with sub-equal joints: the upper maxillary palpi are very slender, filiform, and rather longer than their maxillæ: the lower maxillary palpi are slightly depressed, and somewhat expanded towards their oblique tips; and their maxillæ are a little longer, but no broader than the divisions of the labium. The labrum is narrowly emarginate.

In *Baëtis* the palpi are likewise two-jointed, with joints sub-equal to one another: the upper maxillary palpi are slender, of tolerably even diameter throughout, and not so very long: the lower maxillary palpi are depressed and broadly expanded towards their rounded tips, the basal joints being sub-cylindrical and stout; their maxillæ are longer and much broader than the somewhat subulate divisions of the labium. The labrum is narrowly emarginate. Professor Pictet's figure of the labium and lower maxillæ with their palpi (Pict. *Ephem.*, pl. xxxvi, 9) is not accurate.

The mandibles are much alike in all of these three.

Ashbourne, Derbyshire.

15th September, 1869.

* Derivation.—(Gr.) *Kentron*, a spur, and *ptilon*, a wing; so named in allusion to the costal process of the hind-wing.

Additions to the List of British Coleoptera.

BEMBIDIUM MARITIMUM, Steph.—Frequenting the banks of the rivers and streams here, I capture frequently a *Bembidium* allied to, but distinct from, *B. femoratum*. This species, which I will, for the present, speak of as “No. 1,” is, on the average, rather larger than *femoratum*, and has the head, thorax, and dark portions of the elytra of a distinct metallic green colour; while these parts in *femoratum* are of a darkish brassy colour: No. 1 has, at the least, three joints at the base of the antennæ entirely pale, and the bases of the following joints more or less pale; while in *femoratum* at most the two basal joints are entirely pale, and the base of the third is more or less so. The antennæ of No. 1 are markedly longer than in *femoratum*, and the colour of the palpi is much paler. Moreover, in No. 1, the elytra are broader in proportion to their length than in *femoratum*, and flatter on the disc; the thorax, also, is a little broader in proportion to its length, and is flatter than in *femoratum*. In No. 1, the legs are generally entirely pale (but sometimes the thighs are a little clouded with pitchy in the middle); while in *femoratum* the femora are always pitchy. The careful examination of a long series of these insects has convinced me that we have here to do with two really distinct, though closely allied, and in some respects variable, species.

In his “Illustrations,” and in the “Manual of British beetles,” Stephens has described a *Bembidium* (*Peryphus*) *maritimum*, closely allied to *femoratum*, and found by Mr. Rudd on the banks of the Tees; and, though the descriptions in both places are characterized by that looseness and want of precision which so greatly mar Stephens’ descriptive works, I am of opinion that this *P. maritimus* of Stephens is the species I have above alluded to as No. 1; and consider that, in the absence of any opposing reason, the Stephensian name should be adopted for this insect. Such a reason, unfortunately, exists; for there stands in the European catalogue a *Bembidium maritimum* of Küster; and, although the description of this species is subsequent to Stephens’, yet the inadequacy of the latter author can scarcely warrant us in making the change, which the adoption of the name *maritimum* for the species allied to *femoratum* would render imperative. Schaum, moreover, informs us that *Peryphus maritimus* is represented in the Stephensian cabinet by two examples of *B. bruellense*, one of *concinnum*, and one of *littorale*!

Duval, in his monograph of this genus, has assigned (it would appear without sufficient reason) *P. maritimus* of Stephens as a synonym to *B. concinnum*, and is followed in this respect by Harold and Gemminger in their general catalogue. In Mr. Waterhouse’s synonymical catalogue, *maritimus*, Steph., is given under the head of *femoratum* (following Dawson).

Duval, when speaking of *Bembidium femoratum*, alludes to a variety of that species, coming from the Pyrenees and from England, which he at one time supposed to be a distinct species, and proposed to name *B. puellum*, but afterwards supposed he had connected this form satisfactorily with *femoratum*. The characters he gives for this variety in some respects agree with the insect I have been writing of above; but in other points they disagree; thus, as no sufficient description exists of Duval’s *puellum*, and it is, also, as I say, doubtful whether it can be assigned to the species under discussion; as Stephen’s name of *maritimum* (likewise doubtfully appertaining to this insect) is not available; and as no other description will apply, it seems to me that I am justified in giving a name to the insect in

question. The following diagnosis (to be contrasted with the diagnosis of *B. femoratum* in Schaum's Ins. Deutschlands), taken in conjunction with the distinctions from *femoratum* I have pointed out above, will suffice to characterize it.

B. ANGLICANUM. *Viridi-æneum, sub-depressum, antennarum articulis ad minimum tribus basalibus, pedibus, palpisque rufo-testaceis, horum articulo penultimo infuscato; prothorace sub-cordato, basi sub-lævi; elytris testaceis, fascia pone medium, margineque viridi-æneis, punctato striatis, striis lateribus et apice evanescentibus.*

Long. 2—2½ lin.

Var. femoribus medio infuscatis.

GYRINUS SUFFRIANI, Scriba. This species is allied to *G. natator*, and is nearly equal in size to the smallest varieties of that species, but is readily distinguished by the very different punctuation of the elytra, the punctures of the striæ being obsolete towards the apex, but deep and distinct at the base. I have captured single specimens at Dumfries and Horning, and obtained a small series from Mr. Desvignes' collection; one of these I sent to Mr. Crotch, who has kindly compared it with specimens of *G. Suffriani* which he received from Herr Scriba, and finds that they agree in every respect.

ALEOCHARA LATA. Though, at the present time, this insect appears to be considered without doubt a variety of *A. fuscipes*, it is nevertheless, in my opinion, a distinct species therefrom, and can be distinguished by positive characters. In *A. fuscipes* the hind-margin of the dorsal plate of the 6th abdominal segment is slightly emarginate in both sexes, rather more so in the male than in the female; in *A. lata* it is completely rounded in both sexes. In *fuscipes* this same hind-margin is fringed with short ferruginous cilia, while in *lata* these cilia are black, and are long in the male and short in the female. In *fuscipes* the ventral plate of this segment is rounded at the hind-margin in both sexes; while in *lata* it is rounded in the male and emarginate in the female. These characters, in conjunction with the broad form and dark elytra of *A. lata*, are, I think, quite sufficient to establish its claim to a place as a distinct species from *O. fuscipes*. Gravenhorst described *A. lata* on specimens from N. America; so I am unable to say whether our black species is really conspecific with the American one; if this should prove to be not so, it will be necessary to find another name for the European insect.

ALEOCHARA FUMATA. I have no doubt this insect is only a variety of *A. brevipennis*, as I have all the intermediate forms, and moreover can find no characters to distinguish the most typical *fumata* from *brevipennis*, except size and colour.—**D. SHARP, Eccles, Thornhill, September, 1869.**

A few additions to the Coleopterous Fauna of Lundy Island.—During a sojourn of a month at Ilfracombe, I paid two visits to Lundy Island: curiosity alone would have induced me to explore this isolated granite block, but I was extremely desirous of ascertaining what Aculeate *Hymenoptera* were to be found on it in the month of August. I read, some years ago, with great interest, Mr. Wollaston's notes on the *Coleoptera* found there by him in the month of June, 1844, from which it appeared that in five days he captured 63 species. It is a fact, alluded to in those notes, that one may start for the island frequently, but that landing on arrival there is a matter

of great uncertainty ; I was extremely fortunate in being able to do so on both my excursions. The first insect that I saw on the island was *Bombus hortorum* ; not a variety, as I might or fancied I might expect every species of the *Apidae*, but the veritable insect, in stature and array, that disports in the meadows of Hampstead and Highgate. Everything on the island had, to my eye, a stunted appearance ; trees there are none, but the few bushes that I found had certainly a dwarfed appearance ; the black-berries, also, being of the smallest dimensions. It is not my intention to give any list of the *Hymenoptera* in the present communication, but merely to mention a few species of *Coleoptera* not contained in Mr. Wollaston's paper ; one insect, therein mentioned as being uncommon in Devonshire, but abundant in Lundy, viz., *Cetonia aurata*, I, also, found as late as the month of August ; but I never found it in Devonshire.

The first coleopterous insect that I found was *Ocypus olens* ; on turning up stones in search of ants, this insect was to be found in abundance, yet it does not appear in Mr. Wollaston's list ; June being, I suppose, the interregnum between the spring and autumnal broods.

The following species also do not appear in that list : *Nebria brevicollis*, found under stones, not uncommonly. *Calathus cisteloides*, under dried horse droppings. *Anchomenus pallipes*, under rubbish in an almost dry watercourse. *Anchomenus mæstus* in company with the former. *Pterostichus nigrita* and *Anisodactylus binotatus*, under stones. *Agabus bipustulatus*, under stones in an almost dried up pond. I have no doubt that I might have doubled or trebled this list, had I used the beating or sweeping net ; but I was not intent on this description of game, and such as I have enumerated were taken whilst searching for ants.—F. SMITH, 27, Richmond Crescent, Islington, August, 1869.

On *Otiorhynchus fuscipes*, Walton.—It is always gratifying to have our own views with regard to species confirmed by an able authority. I certainly experience this on reading Dr. Sharp's observations on *Otiorhynchus fuscipes*, at p. 107. I never had the pleasure of capturing this insect, but have repeatedly taken *O. tenebricosus*. Dr. Sharp remarks, that, to render Mr. Walton's description of the distinctive specific characters of *O. fuscipes* perfect, it is only necessary to add, that the longitudinal striæ of the last abdominal segment are considerably finer and more closely packed than is the case in *O. tenebricosus* ; this applies, of course, to the males only, and is precisely the opinion that I indicated in my remarks at p. 232, vol. ii, E. M. M. This difference of striation is the characteristic of all the males that I possess, and which were given to me by Mr. Walton, and captured by him at Portland.

Mr. Rye, in his observations on Dr. Sharp's note, states that he has never been able to find any males except those exhibiting the sexual character of *O. tenebricosus* ; that is, those that have the apical segment coarsely striated, although he has examined many specimens that have passed through Mr. Walton's hands, including those in the British Museum ; unfortunately, amongst these, there are no males ; Mr. Waterhouse's specimens I have not seen, so that I fear Mr. Rye has not hitherto seen examples thoroughly examined by Mr. Walton. It certainly appears that Mr. Walton did not detect the difference in the striation in the two species, since he describes the ultimate segment in both the males as "delicately striated."

With regard to Walton's *O. fuscipes* being the same species as that so named by Olivier, it may perhaps be impossible to determine, as the sculpture is so differently described by different authors; but it is certain that Schönherr so regarded them; and Germar observed a difference between *O. fuscipes*, Walt., and *O. tenebricosus*, but he regarded it merely as a variation. The insect which Dr. Stierlin regards as identical with Olivier's species appears to be accepted as such by continental entomologists, and such perhaps it really is; therefore Walton's species must be regarded as unnamed. I will therefore propose a name which I think will be accepted by all who regard the species as distinct; the synonyma will be as follows:—

Otiiorhynchus Waltoni, Smith.

fuscipes, Walt. (nec. Oliv.), Ann. and Mag.
Nat. Hist. (1847), vol. xix, p. 445.

fagi, Chevr., Schön.

Id.

[The imposition of a new name to Mr. Walton's *O. fuscipes* seems to me to be rather premature. As insects are now proved to be found in Britain that have the sexual character of true *fuscipes*, and as that species is known to vary exceedingly in sculpture, it would appear more probable that Walton's insect should be a variety of *fuscipes* than that it should require re-naming as distinct and unrecognised. Moreover, by admitting the identity of this insect with *fagi*, which is known to be a variety of *fuscipes*, Ol., Mr. Smith does away with the necessity for giving it a fresh name. Considering it as distinct from *fuscipes*, I presume he has carefully compared it with the somewhat numerous European species in Stierlin's monograph closely allied to that insect and to *tenebricosus*. Under any circumstance, I cannot regret that my inability to obtain a sight of Walton's two species, or to reconcile either of them with *fuscipes*, induced me to communicate the note that has originated the interesting observations of Mr. Smith and Dr. Sharp; as it has resulted in the tolerably certain conviction that we really do possess a good species allied to *tenebricosus*.—E. C. R.]

Captures of Coleoptera.—In the end of August last, I took a single specimen of *Triplax Lacordairii*, Crotch (*ruficollis*, Lac.), out of a hard dry fungus, near Darenth Wood, Kent (it will be remembered Dr. Power took his specimen at Erith). I also beat out of some dead branches a small specimen of *Anisozya fuscula* near the above place, on the same day. I have also taken, in the same neighbourhood, this year, *Tropideres niveirostis*, *Hydnobius strigosus* (2), *Scolytus intricatus*, *Hylastes obscurus*, *Opilus mollis* (several), &c.; and, in the Hemiptera, *Asopus luridus* (2), *Monanthia simplex*, *Phygadicus urticae*, &c.

In the middle of August last, I also found, near Croydon, *Agaricophagus cephalotes*, *Thalycra sericea*, *Gymnetron rostellum*, &c.—G. C. CHAMPION, 274, Walworth Road, London, S., September, 1869.

Captures of rare Coleoptera.—When at Sherwood, during the last summer, I captured about half-a-dozen specimens of *Cryptocephalus querceti*, by beating oaks; and I have taken, in this neighbourhood, a single example of *Cryptophagus serratus* from under birch bark.—J. KIDSON TAYLOR, Thorn Cottage, Lime Grove, Longsight, Manchester, October, 1869.

Balaninus brassicæ, Fab., an inquiline, not a gall-maker.—Mr. Rye having kindly pointed out to me, that, of this awkwardly named beetle, the monographer of the genus, M. Desbrochers des Loges, says,—(Ann. Soc. Ent. Fr., 1868, p. 333) "*qu'il détermine une galle sur les feuilles du saule* (de Heyden)." I beg leave to explain, that, so far as my own observations go, the female pierces with the rostrum fully developed galls of a *Nematus* on the leaves of *Salix fragilis*, and deposits therein one or two eggs. The young larvæ feed voraciously on the substance of the gall, and, working their way to the centre, in many cases stifle by their crowding presence the young saw-fly larva to death; and, of course, if, at this period, the galls are examined, the inquiline is found in full possession of the limited free space within. When about half-grown, this beetle-larva has a length of about $\frac{1}{2}$ "', its colour is a greenish-yellow, the greenish tinge being caused by its full intestines; when full grown, it is about $1\frac{1}{4}$ "' long, but appears shorter by its usually curved position; it is then pale yellow, the head fuscous; the body sprinkled with sparse, isolated, brownish hairs, placed in more or less regular longitudinal rows.

When full-fed, the larva drops to the ground, and, burying at once, forms there a round, earthy cocoon, containing a coating of yellowish silk.

The pupal state lasts about a fortnight or three weeks, when the beetle forces its way out by breaking the cocoon.

Some of the larvæ, which I kept in captivity, abstained from making a cocoon, instead of which they spun over a slight hollow on the surface of the ground an umbrella-shaped silken roof, beneath which they passed their metamorphosis. This roof, about three lines in diameter, possessed in the centre a round spot, so transparent, that the outline of the pupa could be dimly made out. It served as an exit door to the perfect insect.—ALBERT MÜLLER, South Norwood, S.E., 4th September, 1869.

On the habits of Cecidomyia urticæ, Perris.—Having just bred British specimens of this midge from the well-known pale green hairy galls on the stems and leaves of *Urtica dioica*, I offer the following observations concerning its natural history, which may be considered as an unpretending supplement to the accounts published by Perris, Bremi, Loew, and Winnertz. Each gall harbours but one white larva, the alimentary duct of which gives its body a pale greenish hue. A full-fed larva, which I saw on the 22nd August last work its way out of the still closed transverse slit of the pouch, was about a line long, rather flattened; the first segment very slender, beak-like, the second broader, but only half as broad as the third, the fourth to seventh segment each a little broader than the preceding, the eighth the broadest, the ninth to twelfth each slightly diminishing in breadth, the thirteenth considerably narrower, the fourteenth (which is the last), oval, and less than half as broad as the thirteenth, which gives to the latter a truncated appearance. I could not discern any pubescence, but this may be attributed to my lens not being powerful enough. This same larva, placed on earth, burrowed without delay about two lines deep, and on the 4th September, I found that it had changed to a sculptured pupa (described beneath) without spinning a cocoon, or even only a few threads; nor did its companion, which I left quite unmolested, spin at all. This fact is at variance with Winnertz's account, that this larva turns to pupa in a stout (dicht) white silken web (Linnæa, Ent., vol. viii, p. 240). Am I to suppose

that my larvæ abstained from spinning because in the glass jar wherein they were kept they found themselves sheltered against any possible inclemency of the weather? If so, their spinning is a faculty exercised at will, and not merely instinctively.

The pupa was $\frac{3}{4}$ " long, forehead broad, armed on each side with a slight protuberance; behind each eye and located on the thorax, one respiratory, pointed tube; colour of these tubes yellow, their tips fuscous; head fuscous, eyes black, shining, thorax strongly arched, pale fuscous, polished; wing-cases rounded, rather short, pitch black; feeler and leg-cases pitch black, shining; leg-cases twice as long as the feeler-cases; abdomen dirty-yellow, opaque, its upper surface rough and somewhat darker than the rest.

The imago from this pupa, a ♀, appeared on the evening of the 12th September; its companions of both sexes made their appearance within two days afterwards, leaving the ground dotted by their protruded filmy white pupal skins with detached feeler-cases.—ID.

A Corixa flying by night.—When reading, with my window open on account of the heat, on the 27th August last, about nine p.m., when quite dark, I was considerably surprised by a female of *Corixa Wollastoni* flying to my light, around which it flew as madly as any moth, "flopping" down on the table and rising again so quickly that I had considerable difficulty in capturing it. When between my finger and thumb, it emitted an odour quite similar to that of the bed bug, but less powerful and persistent, only clinging to my digits for a few minutes.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, September 16th, 1869.

Note on the habits of Iassus cruentatus.—My experiences with this pretty Homopteron do not lead me to the same conclusions as those to which Mr. B. Cooke (p. 109) has arrived. Both last summer at Ross-shire, and this year in Inverness-shire, I have met with the species rather commonly, and always upon birch or *Myrica Gale*. Probably it affects other plants, but certainly the yew is not necessary for its existence.—F. BUCHANAN WHITE, Perth, October, 1869.

Parasites on the Pterophori.—Parasites are certainly rare on the larvæ of this group of Lepidoptera; an ichneumon has been, however, figured and described by M. Millière, and it has been my misfortune four times to have larvæ so infested. Twice the parasitism occurred in the larvæ of *brachydactylus*, sent to me from Zurich, as noted in the Entom. Mon. Mag., vol. i, p. 215. The dipteran there recorded as one of the *Tachinidæ*, has been kindly sent by Mr. McLachlan to Mr. Verrall, and decided by him to be a *Scopolia*, probably *S. oxypterina* (Zetterstedt). Again this spring, two larvæ of *tephradactylus* were infected, but the evil spirits which haunted them were in this case ichneumons. They were regarded by me as the sexes of one species, but they have been named by Mr. Marshall, *Rogas bicolor* (Spinola), and *Mesochorus pectoralis* (Ratzeburg); both larvæ, as in the former case, had only a single tenant each, and, as in the case of the *brachydactylus*, they became stationary just before their time of change, and when dead, seemed to consist only of a dried larva skin enclosing the parasite, and in the case of *brachydactylus* its cocoon also.—R. C. R. JORDAN, Birmingham, 24th September, 1869.

Capture of rare species of Neuroptera-planipennia.—The following notes of captures of *Neuroptera* may prove of interest.

Hemerobius pini, Steph. I obtained a single specimen of this rare insect from a spruce fir at "Redlands," Leith Hill, Surrey, on the 6th June last.

H. inconspicuus, McL. I have again met with this species in Addington Park, Surrey. I captured two examples on the 26th June by beating *Pinus sylvestris*. This species would appear, therefore, to frequent the Scotch fir as well as furze (*Ulex*). See my note on this species in vol. v of this magazine, p. 125.

H. concinnus, St. At the same time and place as the last-named species, I captured nine specimens of this local insect, all being beaten from *Pinus sylvestris*. It does not appear to continue out long, as a fortnight later I visited the same spot and only obtained one more.

Nothochrysa capitata, Fab. This summer I have met with this rarity for the first time during the eight years that I have collected the *Neuroptera*. I took one specimen in Addington Park, at the end of June, by beating Scotch fir. When flying, it has a very glittering appearance.

Chrysopa flavifrons, Brauer. I was staying at Southwold, on the Suffolk coast, in August, and near there I obtained two specimens of this rather scarce species by beating oaks. I saw others at the time, but did not take them.

Chrysopa tenella, Schn.—I have again met with this species. I captured two specimens at Hampstead at the end of June, and one specimen at Black Park, Bucks, on the 26th June.

Chrysopa aspersa, Wesmæl. Mr. McLachlan says in his "Monograph of the British *Neuroptera-planipennia*," that this species frequents woods. I have noticed, however, that it appears to prefer heath-lands which are planted with firs, and it has a habit of flying in the early dusk over the heather. It also, as far as my experience goes, appears about three weeks later than *C. ventralis*, which species I have always found in June in woods, and generally by beating oaks.—PERCY C. WORMALD, 35, Bolton Road, St. John's Wood, 13th September, 1869.

The date of publication of Hübner's Works.—Not the least of the difficulties of the systematic Entomologist arises from the almost total impossibility of ascertaining the dates of various foreign works originally published in parts, so as to fix the priority of the synonyms of species described or figured in them with any degree of certainty. Hübner's works are peculiarly difficult in this respect.

The dates given for Hübner's European Lepidoptera are as follow :

1793	—	1840	...	...	...	Herrich-Schäffer.
1796?	—	1835?	...	...	...	Staudinger.
1805	—	1824	...	...	...	Hagen.

Hagen says that figs. 637—693 of vol. i, were published in 1824, thus implying that the subsequent plates were of later date ; but Hübner quotes figs. 639, 640 in his own "Verzeichniss" (1816), so that the plates in question must either have been issued previously, or Hübner must have quoted plates that were not published for eight years afterwards. The text was apparently commenced in 1805.

The dates for Hübner's Exot. Lepidoptera are,—

1793	—	1840	...	...	...	Herrich-Schäffer.
1806	—	1824	...	...	...	Hagen.

The dates for Hübner's Zuträge,—

1806 Herrich-Schäffer.
1818 — 1837 Hagen.

Hübner cites vol. i. of the "Sammlung," in his Verzeichniss; and figs 83, 84, of the "Zuträge." As the Zuträge and vol. ii. of the Ex. Schmett. are on a different plan to vol. i, it seems that the former was commenced after the completion of vol. i. of the latter. Herrich-Schäffer's date of 1806 is evidently too early for the Zutr.; and Hagen's (unless Hübner cites unpublished plates) too late. Vol. ii. of the Sammlung is evidently subsequent to 1816.

Similar difficulties, but less serious, exist with respect to Esper, Cramer, and some other works. Any information respecting the dates of these or similar works would be most acceptable, as without more definite information than I possess at present, I cannot fix the synonymy of species described or figured by these authors with sufficient precision.—W. F. KIRBY, Dublin, August 24th.

[In my copy of Hübner's Sammlung Europäischer Schmetterlinge, which was in the possession of the late James Francis Stephens from the year 1840 to his death, are some valuable pencil notes as to the dates of Hübner's Plates.

My attention had been called to these more than once by Mr. Stephens in his life-time, when we were discussing (as we frequently did) whether in this or that case Hübner or Haworth had priority. Naturally, I have only concerned myself with these pencil notes in the 5th volume, but they also occur in the 3rd and 4th. In the two first volumes there are none.

The notes in vol. iii. are "Pl. 75 before 1805,

„ 150 „ 1816,

„ 151 after 1822."

..... vol. iv. are "To plate 74 before 1806,

„ „ 100 „ 1816,

From „ 101 after 1822."

..... vol. v. are "*Pyralis* before 1801 to fig. 141,

Tortrix „ 1801 „ 194,

Tinea „ 1801 „ 258,

„ 1812 „ 233,

„ 1816 „ 444,

„ 1822 „ 450,

„ 1829 „ 470,

after „ „ 477."

I believe these calculations were arrived at from reference to other works published at such and such dates and noting where the references to Hübner's figures stopped.

Nothing is more likely than that an author would refer to his own *unpublished* Plates, if they were sufficiently advanced to enable him to do so. As a very good case in point, I may cite what I am actually doing at the present time. I have two volumes in the printer's hands; vol. xi. of the "Natural History of the Tineina," and the "Tineina of Southern Europe:" *each of these contains references to the other*, and I am quite uncertain which will be first published.—H. T. S., Sept. 11th, 1869.]

Occurrence of Lemiododes pulveralis, Hb.; a genus and species of Lepidoptera new to Britain.—During my stay in the Isle of Wight this season, I was so fortunate as to capture a ♀ specimen of this species, in company with *Botys flavalis*. Two specimens have since been taken by my brother, and one by myself, at Folkestone. The insect was kindly determined for me by Dr. Knaggs.—E. G. MEEK, 4, Old Ford Road, E., 4th October, 1869.

[This inconspicuous insect has already had a place in our Lists, on erroneous evidence. Stephens, in his "Illustrations" (Haust., vol. 4, p. 55), includes it, remarking—"My specimens were taken in June, at Darenth Wood, several years ago; Maldon Park, G. Wailes, Esq." But, in his British Museum Catalogue, he refers these examples to *Botys fuscalis*. Guenée says (*Pyrallites*, p. 402)—"La figure 826 de Wood, et peut-être même sa figure 323, pourraient être des individus passés. Cependant Stephens lui-même rapporte la première au *Botys fuscalis*, et son témoignage doit être accepté."—Eds.]

Deiopeia pulchella at Folkestone.—On Friday last, October 1st, whilst shooting on the hills, at the back of Folkestone, and not far from where I took *sacraria* in 1865, I disturbed and caught a specimen of *Deiopeia pulchella*. A turnip field, not the usual stubble, was the scene of capture. I kicked up the insect out of a strip of white turnip, between a field of swedes on the one side and a slope covered with rough herbage on the other; there was, however, a barley stubble at no great distance to windward. A close inspection of the vicinity produced no further results. When disturbed, the insect only flew a few yards at a time, but would not at first allow itself to be boxed, being exceedingly shy. On getting a hat over it, however, it most obligingly shammed death, and was speedily boxed. The specimen is a male in fair condition, but rather damaged in one hind-wing.

During a stay there of more than two months, I found little else worth noticing; *Liparis chrysorrhæa* was exceedingly abundant in the Warren at the beginning of August, my brother and myself finding 62 cocoons (quite empty) on one bramble bush. *Odontia dentalis* has been rather common in the Warren, but I have obtained most of mine by searching the Bugloss for its very conspicuous cocoon. I have seen but few *Colias Edusa*, and only one *Hyale*. Sugaring has paid pretty well, but then I have scarcely missed a night in the vain hope of *Leucania albipuncta* putting in a re-appearance. A few *Aplecta occulta* came at the end of August, and *Agrotis puta* and *A. saucia* have been far more abundant than they were last season. *Put*a has continued from August 2nd until now, and of the latter which came out about September 20th and is just over, I usually had eight or nine each night.—THOS. H. BRIGGS, 6, Old Square, Lincoln's Inn, October, 1869.

Leucania extranea, Heliothis peltigera, and Sterrha sacraria at Neath.—I have much pleasure in recording the capture here by R. Stafford, of a fair female specimen of *Leucania extranea*. He took it on September 15th, about 7.30 p.m., enjoying the sweet blossoms of *Scabiosa succisa*. He also took, on September 3rd, an unusually brightly marked example of *H. peltigera*.

I have been in the North of Argyleshire for two months, and saw many common *Lepidoptera*; the most noteworthy species being, perhaps, *Ph. lapidaria*: I found it amongst *Myrica gale*.

On the three first nights after my return home, viz., October 10th, 11th, and 12th, *Sterrha sacraria* paid us a visit. All three were females, and have laid eggs; but I am afraid that the lateness of the season will make it a hard matter to rear the young larvæ, as my experience in 1867 showed how susceptible they are to the first frosts.—JOHN T. D. LLEWELYN, Ynisgygerwn, Neath, 13th October, 1869.

Agrotis saucia, &c., in the New Forest.—I have sugared in one of the enclosures near Lyndhurst, from September 2nd to 9th (omitting Sunday), and again on September 21st and 22nd. The weather on all the intervening days was so stormy that no sugaring could have been done, had I been here, which fortunately, I was not. Moths have been common as a rule, and *Agrotis saucia* has appeared every night in greater or less numbers. The variation among them is extreme, and many examples are very handsome: the normal *saucia* is common now, and I daresay will continue to be so, if nights are favourable. The other insects I have taken are *T. batis* (a second brood, of course), *C. diluta* (abundantly, it was on every tree), *T. fimbria* (still out), *A. pyramidea* (abundant), *N. glareosa*, *A. puta*, *H. croceago*, and *C. nupta*, *sponsa*, and *promissa*, the two last being, of course, much damaged and scarce. The later species are just beginning to appear, and on the 21st, *H. rhizolitha*, *A. rufina*, *lunosa*, *pistacina* and *litura*, and *X. silago* were out, all for the first time this season; last night again (the 22nd), these were joined by one *H. petrificata*, and I had also the pleasure of boxing a fine specimen of *Epunda nigra* fresh from the pupa.—W. A. LEWIS, (at present at) The Crown, Lyndhurst, September, 1869.

Chærocampa Celerio at Weston-super-Mare.—A very fine specimen of *C. Celerio* was brought to me on September 16th, by a lady, who caught it at rest in her drawing-room.—M. A. MATHEW, Weston-super-Mare, September 30th, 1869.

Acronycta alni at Derby.—On the 19th of August, I took a larva of *A. alni*, which spun up the next day in an elm leaf. It was crawling on some railings under wych-elms. I found one last year on the same road, but it was injured and died.—G. BAKER, 47, Kedleston Street, Derby, September, 1869.

Eupithecia fraxinata at Edinburgh.—A few larvæ of this rather scarce species were beaten out here at the end of August. Some were full-fed, and three belonged to the coloured varieties.—ANDREW WILSON, 21, Young Street, Edinburgh, 16th September, 1869.

Aplecta occulta at Edgware.—In the first week in September, I took a single specimen of *Aplecta occulta* at sugar in my garden, and since my note of the 15th September (page 114), I have taken three more specimens of *Agrotis saucia*.

It may be worth noting that of a dozen *C. nupta* which I have taken at sugar this autumn, ten have been upon one particular lime tree, the only side of which that I can sugar faces the north-west. I have regularly every evening, when I have been at home, sugared two large oaks and two limes in my garden, and have taken only one *nupta* upon one of the oaks, and one upon the other lime tree. The four trees are only a few yards apart, and upon them I have taken this year and last between sixty and seventy species of *Noctuæ*.—ARTHUR COTTAM, Stone Grove Cottage, Edgware, October 1st, 1869.

Colias Edusa near Manchester.—I have seen seven or eight specimens of *C. Edusa* this year in the Bollin valley. I think it has not been noticed there before, as all collectors to whom I have spoken on the subject seemed to doubt my identification of the species.—J. R. HARDY, 118, Embden Street, Hulme, Manchester, September, 1869.

Note on the larva of Peronea rufana, W. V. (*autumnana*, Hüb.).—As the larva of this species seems little known, I may state that in the autumn of last year, I bred two specimens of the var. *bistriana*, from larvæ taken on white poplar, in Southfield, between one and two miles from the Wimbledon Common locality.—G. B. LONGSTAFF, Southfields, Wandsworth, S.W., October 9th, 1869.

Note on a food-plant of Eupithecia albipuncta.—I have found the larva of this species upon *Lythrum salicaria* in Coombe Wood. I do not remember noticing this recorded as one of the food-plants of this species.—ID.

Description of the larva of Nephopteryx angustella.—On September 30th, 1868, Mr. Machin kindly sent me two larvæ of this species feeding on the fruit of *Euonymus europæus*, and from them I have drawn up the following description:—

The full-grown larva is five-eighths of an inch in length, cylindrical, and moderately plump, the two hinder segments rapidly tapering almost to a point, the second tapering a little to the head, which is small and flattened; the segmental divisions rather deeply defined.

The ground colour of the body and legs is a flesh tint, having the slightest suspicion of yellowish-green in it; on the upper surface there are five longitudinal series of dull red-brown markings, extending on each segment from its commencement to about two-thirds of its length backwards, and leaving the remaining third of the segment in appearance like a pale band; on each segment from two to eleven, the markings are to be seen as follows: the dorsal commencing broad, becomes narrower, and finishes behind in a fine point; the sub-dorsal markings, on the contrary, commence with the point of a wedge shape, growing irregularly wider backwards and intersected near their base by transverse lines of the ground colour; on the 12th segment these sub-dorsal marks unite behind, and on the 13th are darker in colour; below the sub-dorsal series comes another, very similar in shape, but arranged with the broad part at the beginning, and of the same colour. The head is dark brown, and there is a broad brown plate on the 2nd segment with a black oval spot on each side of it behind.

The tubercular dots are not conspicuous, being of the same colour as the brown markings in which they are placed; but each of them is furnished with a minute flesh-coloured hair. The spiracles are exceedingly small, of a pale purplish-brown, invisible without a lens.

The larvæ spun up within rotten wood, and the perfect insects appeared on July 18th and 26th, 1869.—WM. BUCKLER, Emsworth, October, 1869.

Note on the food of the larvæ of Scoparia and Crambus.—Mr. Gregson's remarks (vide p. 116) remind me that I intended giving the readers of the Magazine some hints on the finding and rearing of these larvæ—to the end more especially that

Mr. Buckler's gallery of larva-portraits might be benefited. My experience is so small, that I trust Mr. Gregson will kindly tell us his *modus operandi* in finding and rearing these larvæ. It is probable that all (or nearly all) mosses are eaten by the larvæ indifferently, for I have found some of the species he mentions feeding on different mosses from those he names, e.g., *S. muralis* on *Hypnum cupressiforme*, *Dicranum scoparium*, &c., *Crambus falsellus* on *Tortula* (*Syntrichia*) *intermedia* and *T. auralis*, *S. truncicolalis* on *Dicranum scoparium*, &c. &c. I have not found any larvæ feeding on the *Hepaticæ* (*Jungermanniæ*), or on lichens. The time for looking is of course spring and early summer, and the localities that I have found most productive are shady rocks, large boulders and walls, especially on the north side, as most mosses grow there. To find the larvæ, peel off the moss and examine the under-side of it. If larvæ be there, the galleries of silk slightly spun upon the moss and the frass will indicate their presence. To rear them, I find the best plan is to place the tufts of moss in a jam-pot with ground top, and cover with a piece of glass—the moss will not require moistening. The perfect insects will appear at intervals during the summer. Probably, if the larvæ are young, some fresh moss should occasionally be put into the jam-pot. Another Cryptogamophagous larva, not often seen, is that of *Nudaria mundana*. To find this, note some wall of loose stones (a "dry stone dyke") where the imago is abundant, and in May lift the upper stones and examine their under-sides. The larvæ will be found feeding on a green confervoid growth that covers the stones.—F. BUCHANAN WHITE, Perth, October, 1869.

Captures at Yarmouth, with notes on the earlier stages of Crambus fascelinellus.—

Some time last June, my young friend, Mr. Geo. Hunt, went over to Yarmouth for a days' collecting, but, the weather being cold and windy, could get very little except *Eubolia lineolata*. He, however, chanced to notice that the wind in blowing away the loose sand had exposed several cocoons, and by disturbing the sand he found a few more. Of these he kindly brought several to me, but, supposing they belonged to some common *Noctua*, I took no steps to obtain more, till on July 13th, I was startled by the appearance of a lovely *Crambus*, which, though new to me, could be no other than *fascelinellus* (*pedriolellus*).

Being unable sooner to leave home, I went on the 19th to Yarmouth, and after searching for some hours with very little success, at last found the cocoons in comparative plenty, and collected a considerable number.

These sandhills (locally called Denes) are the most barren that I have ever seen; there is very little even of the Marram or bent (*Ammophila arenaria*), and what there is is stunted. *Ononis spinosa* in patches, *Galium verum*, *Convolvulus soldanella*, and a curious square looking succulent plant, with a berry-like capsule at the top, are the most conspicuous plants, and in those places in which the sand is too loose even for these, scattered blades of *Triticum junceum* only are to be found.

This grass appears to be the food of *fascelinellus*, and from observations made while searching for the cocoons, I gather that the larva lives under the surface of the sand in a silken tube of considerable size, that it feeds especially on the central shoot of the grass gnawing it down to the root, and that this dry pabulum suffers little apparent change in passing through its system, since the hinder part of the tube is generally stuffed with frass closely resembling bitten up morsels of grass.

When full-fed, the larva spins a long cocoon in a perpendicular position in the sand, and attached at right angles to the tube, the upper end being, I believe, close to the surface; but this is a condition liable to constant alteration from the action of the wind.

On this occasion (July 19th), I found a few of the moths on the sand, and several emerged from the cocoons before I got home.

Ten days afterwards, as they did not emerge by any means as freely as I had hoped, I went to Yarmouth again, and found a few cocoons still containing pupæ, and a large number of the moths sitting on the bare sand, generally at the bottom of a foot mark or other slight depression which would shelter them from the wind. Hardly a specimen was to be seen on a grass blade, and to this habit of sitting on the bare sand under the direct rays of the sun, I attribute their almost invariably faded appearance.

To capture them it was only necessary to carefully examine the sand, and box them when found; no net was necessary, as they very seldom attempted to fly. More sluggish moths I have seldom seen, and it is not to be wondered at that the species remains excessively local. It seems to continue out a long time, as I took a specimen as late as August 20th.

On my first and second visits I also found a few cocoons of *Agrotis cursoria*, compact and egg-shaped, and the little stumpy ones of *Anerastia lotella*, and of the latter species the perfect insects were very common. Among them were two or three lovely varieties: one, very rare, dark grey with a broad whitish costal streak, another bright reddish with a similar streak, and a third reddish with greyish white veins.

Except a specimen of *Gelechia distinctella*, nothing else of moment occurred on these two visits, but, on August 20th, the *Agrotis* being out, I obtained the most lovely varieties I ever saw of *cursoria* and *tritici*, both of which were very abundant; *præcox* and *aquilina* also occurred but rarely; *Crambus latistrius*, which one generally associates with extensive heaths, was not scarce; and the lazy little *Eubolia lineolata* (2nd brood) was constantly to be seen flying a few yards, and then lying on its side on the sand with its wings up, feigning death.—CHARLES G. BARRETT, *Norwich*, 16th October, 1869.

Cymatophora ocularis, *Xylomyges conspicularis*, &c., near Worcester.—Of five pupæ of *Cymatophora ocularis* I obtained last autumn, two attained the perfect state on the 25th of May, proving to be male and female, and paired about 10 p.m. on the same day; by 7 o'clock next morning they had separated. During the night of the 25th the female deposited ten eggs, on that of the 29th ten more, and several more on that of the 30th. She was quite lively for nearly a week after, but laid no more eggs. I fed her on sugar moistened with wine. The larvæ hatched out during the 8th, 9th, and 10th of June, coming forth by day and night indifferently. Half of them have since died, the others are doing well. I have forwarded two or three to a gentleman who will, if all be well, in due time give an account of them. The eggs were rather large in proportion to the moth, somewhat flattened, in colour bluish-white; they were deposited on the upper-side of the leaves of poplar (a twig of which I enclosed with the moth), near the edge, towards the petiole.

It may be worth while to mention that I dug a pupa in the autumn which bore a strong resemblance to that of *Axylia putris*, but appeared a trifle larger: as no moth emerged from it I examined it one day this week, and, finding it dead, stripped off the skin from the wings and thorax, when I could plainly see it was *Xylomyges conspicillaris*. The pupa of the latter insect has been said to resemble that of a *Teniocampa*. My object in these remarks is to point out its likeness to that of *A. putris*.

In May I bred two or three each of *Nepticula catharticella* and *Tischeria angusticoella* from larvæ collected near here in the autumn.—J. E. FLETCHER, Worcester, 2nd July, 1869.

Captures of Lepidoptera at Glanvilles Wootton.—The following is a list of some of my best captures this season:—*Exapate gelatella* (January 7th), *M. alternata*, *L. Servillana*, *Stigmonota internana* (bred from oak-apple*), *Pericallia syringaria*, *Leucania straminea*, *Homæosoma nimbella*, *Aplota palpella*, *Ephyra orbicularia*. I also found *Arge Galathea* (not seen here since 1836), *L. Argiolus* (not since 1840), and *P. falcula* (not since 1836), species which used formerly to be common.—C. W. DALE, Glanvilles Wootton, Dorset, September 15th, 1869.

Sesia tipuliformis in New Zealand.—Last summer I had brought to me the fragments of a moth found on the window inside a house at Christchurch, and upon examination, found it was one of the "clear-wings," and such parts as remained had very much the appearance of *Sesia tipuliformis*. I set to work to examine the currant bushes, and at length found some with larvæ mining the stems; from these I bred beautiful specimens precisely similar to *tipuliformis*. I have not the least doubt the moth has been introduced here with imported currant bushes.—R. W. FEREDAY, Christchurch, New Zealand, August 5th, 1869.

Notes on Butterflies found near Paris.—Returning to Paris after having resided many years in England—particularly in Liverpool, where I first began to collect—I fancy that my three months' experience in entomologizing in the neighbourhood of the French metropolis might perhaps interest some of your readers, and I have therefore pleasure in forwarding you some of my notes; my list would, no doubt, have been more extensive and interesting had I more leisure to devote to collecting, but I have but little of that needful; added to this, the weather has been most unseasonable here, and everyone complains of the paucity of insects.

My business place and residence being in the S.E. of the city, I have consequently confined myself to working the country in that direction, particularly a sandy tract encircled by a bow of the river Marne, and called La Varenne St. Maur, not far from Vincennes; it is well timbered, but the trees (principally oaks) are mostly young.

In the same direction, but across the river, lie two large woods of Villiers and Notre Dame, which I found very productive.

I visited several times that once notorious abode of robbers, the forest of Bondy; it was at one time a famous entomological locality, but it is now being cut up into lots and being built upon, so that it is not so good a place as it was.

The following is merely a list of the species which I have captured or seen myself.

* Is Mr. Dale sure of this food-plant? The insect usually feeds on *Ulex*.—Eds.

P. Podalirius and *P. Machaon*. Several in May, had some larvæ of the latter feeding on carrot.

L. sinapis. Common; the spring brood differs from the summer brood in the shape of the apical dark spot, just as in England. The var. *diniensis* is only the female of the summer brood.

P. cratægi. Bred a fine ♀ from a pupa found attached underneath a currant leaf. It resembles somewhat that of *brassicæ*, but it is larger and not so angular.

Brassicæ, *rapæ*, *napi*, *cardamines*, and *rharni*, all abundant.

Argynnis Paphia, common; the var. *Valezina* occurs here, but not commonly.

A. Adippe, *Aglaia*, *Selene* and *Euphrosyne*, all common.

A. Dia. Common in May, a second brood in August, but this year I found a brood out early in July. A pretty species.

Melitæa Artemis. Common, not differing from the English southern type. The Welsh specimens are much admired here.

M. Athalia. Common; the insect is more distinctly marked and darker in colour than in England; the band below the white one, in the middle of the under-side of the hind-wing is always filled up with dark fulvous, which I find is not usually the case in English specimens.

M. Dictynna. This once reputed British species is common here, and is found with *Athalia*, but I confounded it with that insect and only took three, which at the time I thought were merely dark specimens of the allied species. Having given my dark *Athalia* to a friend in Liverpool, I cannot establish a comparison, but I would not be surprised to learn some day that *Dictynna* has been confounded with *Athalia* in collections, and that it is once more re-integrated into the English list. It is darker than the typical *Athalia*, particularly on the hind-wings, the fulvous spots forming the bands being very minute. The characteristic markings, however, are on the under-side of the hind-wing. The central pale band is narrower and less distinct than in *Athalia*; in the centre of the fulvous band there is a distinct black waved line (not a merely indicated one as in the other species) and a row of small black dots below it. The hind margin is pale fulvous, and not straw-colored. The fringe is distinctly chequered. The larva feeds on *Veronica agrestis*.

M. Cinxia, which has such a restricted range in England, is common everywhere here, but more especially at La Varenne, where the larvæ are found abundantly in the dry fields about their food plant, *Plantago lanceolata*.

Vanessa Atalanta. Common, hibernated.

V. Io and *urticæ*. Larvæ abundant; the larvæ of *urticæ* are much paler than those I noticed in England, being of a bright yellow color.

V. Antiopa. One hibernated specimen. This is swift on the wing, and I have been recommended to smear some honey on the trunks of birches, as in that way many may be taken. I hope it may prove so. It is not a common species in the neighbourhood of Paris, the best locality being the forest of Fontainebleau.

V. polychloros. The larvæ are common on elm, &c., everywhere, and the pupæ can be found under the copings of walls, attached by the tail. The greater portion of them, however, are attacked by parasites, for out of two or three dozen pupæ I obtained, only five were sound. They have four gilded spots in front. The perfect insect is strong on the wing, but frequently rests on the trunks of trees in clearings.

V. C-Album has similar habits to the preceding, and is common.

Apatura Iris. Went too late after it, and saw only a few faded ones. Caught a fine var. called *Beroe*. It has only the two apical white spots, all the other white markings being absent, and is very rare here.

A. Ilia. Saw several. Generally a common insect, together with its var. *Clytie*. Has similar habits to *Iris*, but is less restricted to woods.

L. Sybilla. Common in all the woods.

L. Camilla. I cannot understand how any one could have confounded this with the allied species. It is abundantly distinct, differing in being smaller, having more acute wings, and in being bluish-black, with a marginal row of bluish dots. The white band is different, and it has a conspicuous white spot in the discoidal cell. The under-side differs also considerably. It flies with *Sybilla*, but is not common. I only got one at Bondy.

A. Galathea, *S. Tithonus*, *Megæra*, *Ægeria*, *Hyperanthus*, *Janira*, and *C. Pamphilus*, abundant.

I caught a queer variety of *Janira*; it has two large white triangular blotches in the centre of the wings on the right side.

Satyrus Mæra, which very much resembles *Mægera*, has similar habits. I bred a specimen from a pupa which I found suspended by the tail to a projecting stone of a wall. This pupa was light green, round, with two rows of raised yellow dots in front. There are two broods.

Satyrus Dejanira. This fine species is not common; I only took a pair at Bondy.

Cænonympha Hero and *Arcanius*. Both common, but *Hero* is very local, flying in damp places in woods.

Thecla Lynceus (*Ilicis*, Hb.). Common at Bondy in June, but I took only a few, as it resembles *pruni* very much. The males are out first. This species soon becomes wasted.

T. quercus and *rubi*. Several.

P. Phlæas. Abundant.

P. Dorilis. One in May; should be common. "Blues," except *Alexis*, very scarce. Took only solitary specimens of *Alsus*, *Adonis* and *Acis*, and a few *Argiolus*.

N. Lucina. Several.

Alveolus, *sylvanus*, *linea*, and *Paniscus*. All common.

I have enumerated 55 species, but about a hundred are found in the neighbourhood of Paris (although some of the localities are at a considerable distance; for instance, Fontainebleau is 45 miles from the capital), out of about 240 of which the French Diurni list is composed. The district is poor in the *Satyridae* (the *Erebice*, of course, being totally wanting) and *Lycenidae*.

I seize this opportunity to apologise to those esteemed friends with whom I corresponded whilst in England, for not writing to them, and I am sure they will excuse me as I have been so very busy of late. I shall be very glad to hear from those who care to correspond with me now in Paris.—E. L. RAGONOT, 33, Rue de Buffon, Paris.

The sexes of Papilio Merope.—I have much pleasure in making known the following important evidence received this afternoon from the lips of Herbert T. Usher, Esq., Administrator of the Gold Coast, and which perfectly bears out Mr. Trimen's views respecting the sexes of *Papilio Merope*.

Mr. Usher was collecting *Lepidoptera* at Lagos, in the year 1862, and was on one occasion much surprised to perceive two very distinct looking butterflies in *copulâ*, the one pale yellow, black bordered, and with long tails, the other black and white, without tails (the latter form, which he took for *Danaïs Nicarius*, he considered very abundant); this pair was presented to Mr. Freeman, late Governor of Lagos, who noted them as sexes in his collection: the fact that they were placed together in the British Museum collection, recalled the occurrence to Mr. Usher's memory.—A. G. BUTLER, 17, Oxford Road, Ealing, 22nd September, 1869.

CHANGES OF ADDRESS.

E. C. RYE, *from 7, Park Field, to 10, Lower Park Fields, Putney, S.W.*

DR. F. BUCHANAN WHITE, *from Strathglass, Inverness-shire, to Perth.*

T. J. CARRINGTON, *from Melbourne Terrace, to 31, Holgate Road, York.*

EXCHANGES.

For Exchange.—*Edusa*, ♂ (poor), *Galathea*, *Hyperanthus*, *cardui* (2), *Aglaia*, *Euphrosyne*, *Argiolus*, *Alveolus*, *Tages*, *linea*, *statices*, *Elpenor*, *stellatarum*, *lanestris* (pupæ), *spinula*, *conigera*, *furuncula*, *trilinea*, *tritici*, *pistacina*, *serena* (2), *verbasci* (pupæ), *iota* (2), *nupta* (1), *mi*, *glyphica*, *ænea* (faded), *elinguaria*, *lichenaria* (2), *thymiararia*, *imitaria*, *amataria*, *citraria*, *adustata*, *ulmata* (1), *rupicaprararia*, *leucophæaria*, *didymata* (2), *rubiginata*, *bipunctaria*, *purpuralis* (faded), and *colonella*.

My wants are numerous, and comprise very many of the common species of *Heterocera*. Among the *Rhopalocera*, the following: *Hyale*, *sinapis*, *Iris*, *Antiopa*, *Acis*, *Arion*, *Artaxerxes*, and *Actæon* are desiderata.—The Rev. ALEX. NASH, Hardwicke, Gloucester.

I have pupæ of *E. lariciata*, *valerianata*, and others, which I shall be glad to exchange for pupæ, or good specimens, of *E. subumbrata*, *pygmæata*, *succenturiata*, *pusillata*, *distinctata*, *coronata*, *pumilata*, *dodoneata*, *subciliata*, *expallidata*, and *indigata*; pupæ preferred.—GEO. BAKER, 47, Kedleston Street, Derby.

I have *duplicates* for exchange of *L. sinapis*, *C. Edusa*, *T. pruni*, *L. Argiolus*, *H. Paniscus*; *S. apiformis*, *B. neustria* (bred), *S. illustraria* (♀), *E. angularia*, *C. lichenaria*, *H. thymiararia*, *L. adustata*, *E. venosata* and *lariciata*, *A. rubidata* and *derivata*, *L. conigera*, *N. depuncta*, *E. truncicolella*, *C. pinetellus* and *inquinatellus*, *E. interpunctella* (bred), *P. palumbella*, *C. rusticana*, *R. turionana*, *C. splendana* (bred), *D. politana* and *alpinana*, *C. scintillulana*, *T. pseudo-bombycella*, *N. cupriacellus*, *G. populella*, *longicornia*, *diffinis*, *umbrosella*, *rhombella*, *cerealella*, *obsoletella* and *brizella*, *B. grandipennis* and *incongruella*, &c.—W. THOMPSON, 183, Stantonbury, Wolverton, Bucks.

Duplicates.—I have a few good specimens left of *Hyale*, *Sibylla*, *sinapis*, *Paphia*, *Adippe*, *fuciformis*, *Galathea*, *taminata*, *pyramidea*, &c.

Desiderata.—*Apiformis*, *chrysidiformis*, *philanthiformis*, *ichneumoniformis*, *pygmeola*, *quadra*, *B. trifolii*, *psittacata*, *simulata*, *firmaria*, &c.; &c.—H. RAMSAY COX, West Dulwich, London, S.E.

I have *duplicates* of *Epunda lichenea* (and eggs), *Catoptria pupillana*, *Stigmota lunulana*, *Bactra furfurana*, and several other species,—W. SIMMONS, 8, St. Mary's Terrace, Scarborough.

Duplicates.—I have a few *Tapinostola elymi* to spare, and shall be glad to receive offers for the same. Those not hearing from me within a week may conclude their offers are not accepted.—JOHN THORPE, Church Street, Middleton.

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R. M'LACHLAN, F.L.S. H. T. STAINTON, F.R.S.



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A NOTICE OF THE SKANDINAVIENS FJÄDERMOTT OF
H. D. J. WALLENGREN.

BY R. C. R. JORDAN, M.D.

(Concluded from page 125.)

PTEROPHORUS (Geoffroy).

Antennæ rather long, those of the male finely serrated, of the female very indistinctly ciliated, with the basal joint thickened. Forehead obtuse, the feathers forming no cone. Palpi shorter than the head, slender, rounded, somewhat ascending, pointed, with the joints not distinguishable. The tibiæ all slender, not thickened. First pair of spines in the posterior tibiæ very unequal, the inner spine very long, being more than double the length of the exterior one. Anterior wings cleft to one-third of their length, the posterior angle in the anterior segment wanting, in the posterior segment not very distinct. The segments of the posterior wings slender, the posterior segment without black scales in its very long fringes. The anterior margin of the anterior wings deflexed, the posterior margin not toothed, with the whole posterior segment both deflexed and turned in so as to form a channel, in which the posterior wings are received, when the insect is at rest. Veins of the anterior wings nine, of uniform thickness; the 1st from the base, almost in the very margin, the 2nd joined at the base with the common lower trunk of the veins, the 3rd from the posterior margin of the cell, and as well as the 4th, which is two-branched, arises from the posterior angle of the cell, running into the inferior segment, the 5th to the 7th are simple, and arise almost from the same place (the anterior angle of the cell), running into the anterior segment, the 8th arises from the anterior margin of the cell, and the 9th from the base. The veins of the posterior wings are five; the 1st, two-branched, arising from the anterior angle of the cell, and running into the first segment, the 2nd and 3rd both simple, the 2nd arising from the posterior angle, and the 3rd from the posterior margin of the cell, and ending in the 2nd segment, the 4th and 5th simple, springing from the base, and ending in the 3rd segment. The cell of the anterior wings almost open, the transverse veinlet very slender, not distinguishable. The cell of the posterior wings closed by a spurious transverse veinlet.

Of this genus, Sweden and England alike possess only one species, the well-known *pterodactylus*. Wallengren believes this to be the *monodactylus* of Linné, and hence calls it *Pterophorus monodactylus*. The two well-known varieties, in one of which the upper wings are light cinnamon-brown; and in the other, a light greyish-white, more or less tinged with reddish, seem to be both described.

8. LEOPTILUS (Wallengren).

Antennæ of middle length, those of the male at least very finely ciliated, with the basal joint slightly thickened. Forehead obtuse, the feathers forming no cone. Palpi either shorter or very slightly longer than the head, slender, pointed, a little rounded, sometimes bending downwards at the last joint. Tibiæ all slender, not thickened. Spines of the posterior tibiæ almost equal. Anterior wings cleft to the third part of their length, no posterior angle to the upper segment, and that of the lower segments also wanting, or else most indistinctly marked. Segments of the posterior wings slender, with fringes of moderate length, the 3rd segment without any black scales in the fringe. Anterior wings almost flat, posterior margin not toothed, deflexed, so as to enclose the inferior wings when at rest, as in the preceding genus.

The Swedish species of this genus are *L. scarodactylus*, *L. tephrodactylus*, *L. microdactylus*, *L. osteodactylus*, and *L. brachydactylus*. Our own British species are also five, namely, *L. Lienigianus*, *L. tephrodactylus*, *L. microdactylus*, *L. osteodactylus*, and *L. brachydactylus*. There is no reason why *scarodactylus*, the larva of which feeds on the blossoms of *Hieracium umbellatum* and *H. boreale* in August and September, should not be met with in our country. The moth appears in July. It is larger than *microdactylus*, nearly equal to *osteodactylus* in size, but not so yellow; the spots are browner than in *microdactylus*, and the lower one is not exactly at the fissure, but rather below it; the most striking difference, however, is in the dark grey fringe in the upper wings of *scarodactylus*, contrasted with the pale brown fringes in *microdactylus*.

9. ACIPTILUS (Hübner).

Antennæ finely ciliated, with the basal joint thickened. Forehead obtuse, the feathers forming no conical eminence. Palpi rather shorter than the head, slender, pointed, the last joint bending downwards. All the tibiæ slender, and not thickened, the spines of the posterior tibiæ unequal. Anterior wings cleft almost to the middle of their length, the segments of all the wings slender, linear, and evidently without angles. Inner margin not toothed, the 3rd segment of the posterior wings without black scales in the fringe. Anterior wings flat, with the margins only very slightly deflexed. Veins of the anterior wings five in number, simple; the 1st to the 3rd arising from the base and running to the posterior segment, the 4th and 5th also springing from the base and going to the anterior segment. The 1st, 2nd and 5th veins more slender than the others. The veins of the posterior wings are four; the 1st from the base into the first segment, the 2nd from the base into the middle segment, and the 3rd and 4th from the base into the third segment. The 3rd and 4th veins are more slender; the 2nd sometimes sends off a very fine branch towards the first fissure. Cells of the wings, none.

The Scandinavian species of this genus are only two, namely, *Aciptilus tetradactylus* and *A. pentadactylus*. The larva of *tetradactylus* is said to feed on *Thymus serpyllum*, in May and June. In Britain, we fortunately have several more of this genus, viz., *A. galactodactylus*, *A. spilodactylus*, *A. baliodactylus*, *A. tetradactylus*, and *A. pentadactylus*. *Paludum* certainly does not belong to it, the much longer palpi and the slightly thickened tibiæ would be quite enough to distinguish it. The only insect known to me in this group as likely to pass in our cabinets undetected is *xanthodactylus*, which might be overlooked as a variety of *baliodactylus*. It may be known by its having a spot on the inner margin of the anterior wing, opposite the one on the outer margin, as well as a spot at the fissure.

There is much in this excellent monograph which would well merit further notice, and I leave it in hopes that some one conversant with the Swedish language will take it up, and that the restoration of supposed Linnean names will be investigated by some one who has the means of discovering the truth at his disposal.

The following list of our native plume moths, with the food-plants known to me, may be useful, at all events, to the young entomologist; it will be noticed that none feed on trees, the rose and the bramble are the nearest approaches to them:—

PTEROPHORIDÆ.

Food-plant.

<i>Chrysocorys festaliella</i> (Hübner)	Bramble and raspberry.
<i>Agdistis Bennettii</i> (Curtis)	<i>Statice limonium</i> .
<i>Cncæmidophorus rhododactylus</i> (Vienna Cat.)	Rose (flowers).
<i>Platyptilus dichrodactylus</i> (Mühlig)	<i>Tanacetum vulgare</i> .
„ <i>Bertrami</i> (Rössler)	<i>Achillæa ptarmica</i> .
„ <i>isodactylus</i> (Zeller)	<i>Senecio</i> , sp.
„ <i>gonodactylus</i> (V. C.)	<i>Tussilago farfara</i> .
„ <i>Zetterstedtii</i> (Zel.)	<i>Senecio</i> , sp.
<i>Amblyptilus acanthodactylus</i> (Hübner)	<i>Ononis arvensis</i> , &c.
„ <i>cosmodactylus</i> (Hübner)	<i>Aquilegia vulgaris</i> .
<i>Oxyptilus lætus</i> (Zeller)	<i>Andryala sinuata</i> .
„ <i>pilosellæ</i> (Zeller)	<i>Hieracium pilosella</i> .
„ <i>teucree</i> (Greening)	<i>Teucrium scorodonia</i> .
„ <i>obscurus</i> (Zeller)	<i>Hieracium pilosella</i> .
No genus, <i>phæodactylus</i> (Hübner)	<i>Ononis arvensis</i> .
<i>Mimæseoptilus serotinus</i> (Zeller)	<i>Scabiosa arvensis</i> .
„ <i>zophodactylus</i> (Duponchel)	<i>Erythræa centaurium</i> .
„ <i>Hodgkinsoni</i> (Gregson)	unknown to me.
„ <i>plagiodyctylus</i> (Fischer)	<i>Scabiosa columbaria</i> .
„ <i>fuscus</i> (Ratzeburg)	<i>Veronica chamædrys</i> .
<i>Oidæmatophorus lithodactylus</i> (Treitschke)	<i>Inula conyza</i> , &c.
<i>Pterophorus pterodactylus</i> (Linnæus ?)	<i>Convolvulus sepium</i> , &c.
<i>Leioptilus Lienigianus</i> (Zeller)	<i>Artemisia maritima</i> .
„ <i>tephrodactylus</i> (Hübner)	<i>Solidago virgaurea</i> .
„ <i>microdactylus</i> (Hübner)	<i>Eupatorium cannabinum</i> .
„ <i>osteodactylus</i> (Zeller)	<i>Solidago virgaurea</i> .
„ <i>brachydactylus</i> (Treitschke)	<i>Lactuca muralis</i> .
<i>Aciptilus galactodactylus</i> (Hübner)	<i>Arctium lappa</i> .
„ <i>spilodactylus</i> (Curtis)	<i>Marrubium vulgare</i> .
„ <i>baliodactylus</i> (Zeller)	unknown to me.
„ <i>tetradactylus</i> (Linnæus)	<i>Thymus serpyllum</i> .
„ <i>pentadactylus</i> (Linnæus)	<i>Convolvulus arvensis</i> .
No genus, <i>paludum</i> (Zeller)	unknown to me.

A few words in conclusion, even at the expense of seeming prolix : What is the true position of the *PTEROPHORIDÆ*? We British entomologists are apt to take the position of groups for granted, and to create imaginary links of exotic species to fill up any gap however wide; the leap, therefore, from the *Nepticulidæ* to the *Pterophoridæ*, has, for this reason, passed unquestioned, yet surely no one could really believe this to be a true sequence in classification. In the list above, *Chrysocorys* is classed amongst the plumes, and if this be its true position (and for such opinion I have the high authority of Mr. Stainton to back me), it is certainly a strong connecting link to the *Tineina*, yet my own views of the affinities of the *Pterophori* would be, in spite of this, that they were rather an aberrant group of the *Pyrallidæ* than of the *Tineina* (that is, taking the term *Pyrallidæ* in its widest meaning), and of these, that the genus *Chilo* was their nearest ally: but there is so much that is anomalous in the whole group that this is said rather with the view of opening a difficult question than of giving a positive opinion. Heterodox as it must appear, I have often dared to think that there was something essentially wrong in our classification of the *Lepidoptera*; as a large group they stand between *Trichoptera* on the one hand, and either *Diptera* or *Hymenoptera* on the other. With the *Trichoptera* we have at least two true points of connection, namely, through the *Psychidæ*, and again through *Cataclysta* and *Acentropus*: on the other side the relationship is more doubtful; yet to me, considering that the mandibulate mouth exists in the embryonic or larval state of the *Lepidoptera*, and considering further how nearly the larva of the *Tenthredinidæ* approach to those of *Lepidoptera*, the connection seems more close between that group and the *Hymenoptera*, than the *Diptera*. If this be so, the *Sesiidæ*, though confessedly one of the most mimetic groups among the *Lepidoptera*, have a true homological resemblance rather than a mere mimetic analogy with *Hymenoptera*, and it would follow almost as a corollary that instead of beginning with *Ornithoptera*, *Teinopalpus*, and *Papilio*, we should commence with *Trochilium*, and instead of finishing with the *Pterophori*, we should end our lists with the *Psychidæ* or *Acentropus*. But the reader must remember that he must lay the burden of this heresy on my back, and not on that of the author, whose monograph has been just brought before his notice.

ON THE ŒCONOMY OF THE *CHRYSIDES* PARASITIC ON *ODYNERUS*
SPINIPES.

BY T. ALGERNON CHAPMAN, M.D.

The species of the genus *Chrysis* are, so far as is known, parasitic on wasps and bees; those which are attached (apparently, exclusively) to *Odynerus spinipes* being *C. neglecta* and *bidentata*, which are common wherever *O. spinipes* abounds. *C. ignita*, the most abundant species of the genus, appears to lay her eggs in the nests of almost any kind of wasp to which she can obtain access, and occasionally visits those of *O. spinipes*, but is abundant in the nests of *Odynerus parietum*. *C. fulgida* has also been recorded (by Mr. F. Smith) as attached to *O. spinipes*; but I have never met with it, and suspect that it is the proper parasite of some other and rarer species of *Odynerus*, and that its occurrence with *O. spinipes* is accidental, in the same sense as that of *C. ignita* may be said to be so. I may remark, that I was quite unprepared to find *C. ignita* so rare as a parasite of *O. spinipes*; as, though often to be seen about the burrows of that insect nearly as plentifully as *C. neglecta* or *bidentata*, out of more than a hundred *Chrysis* cocoons collected last winter, I found only one of *C. ignita*; and this summer I have seen only three of its cocoons in the cells of *O. spinipes*. The destruction caused by *Chrysidæ* amongst the young brood of *O. spinipes*, roughly measured by the cocoons collected last winter, is in the proportion of one to three of those of the wasp; the proportion of *C. neglecta* to *C. bidentata* being as three to two.

On July 17th, I observed a nest of *O. parietum* with one cell open and containing a nearly complete supply of Lepidopterous larvæ. A *Chrysis ignita*, flying about, settled beside the cell; and, after a brief examination with her antennæ, wheeled round, and, introducing her abdomen into the cell, rested for about twenty seconds, doubtless in the act of oviposition. I now regret that I did not then examine the contents of the cell, in order to ascertain the fate of the egg of *O. parietum*. Three-quarters of an hour later, *O. parietum* had closed the cell with the usual earthen pellets. Two days afterwards, I examined this cell, when I found a larva of *C. ignita* a quarter of an inch long, together with the Lepidopterous larvæ stored by the wasp, but there was no trace of either egg or larva of the latter. On the 23rd, six days from the date of oviposition, the *Chrysis* larva had eaten all the store, and was full-fed. I obtained evidence, by finding the exuviæ, of its having cast its skin three times, whilst under observation; and, from the analogy of *C. bidentata*, I believe it had done so four times

altogether. The stored larvæ had all been eaten, their heads alone remaining, just as when eaten by the wasp grub. The larva then spun a cocoon, which I know to be typical of *C. ignita*. This was the only occasion on which I had a feeding larva of *C. ignita*, and the rapidity with which it fed up astonished me. None of my *C. neglecta* or *bidentata* fed up so rapidly; but the warm sunny wall on which *O. parietum* had built her nest may partly account for this, my larvæ of the other two species having been kept comparatively cool.

C. neglecta begins to emerge from the pupa state at the same time as *O. spinipes*, namely, about the middle of May; and, by the first week in June, all of both species have emerged. On examining a bank colonised by *O. spinipes* at this period, the cocoons of the previous year are found empty; but, if the day be dull, *C. neglecta* will often be found hiding away in the empty cocoons of *O. spinipes*, and usually a pair together. When the sun is out, *O. spinipes* is busy constructing her canals and granular tubes, and *C. neglecta* is actively running and flying about the burrows. *C. bidentata*, however, is not to be seen; and, on closer examination, it will be found that of this parasite the cocoon of the previous year still contains the perfect insect, which does not emerge until the last of the *spinipes* brood are coming out, nearly three weeks later than *C. neglecta*. I have not seen the egg of the latter, and do not know how or where it is laid; but it supplants that of *O. spinipes*, as, a few days after the mother wasp has closed her cell, stored with green grubs, it contains a young larva of *C. neglecta* busily eating that store, and no trace remains of the egg or larva of the *Odynerus*. Early in July, the larvæ of *O. spinipes* and *C. neglecta* are to be found full-fed, and spinning their cocoons. As the season advances, the later stored cells appear to escape the attack of *C. neglecta*; for, in the middle of July, whilst *O. spinipes* is still busy in storing, there are comparatively few specimens of *C. neglecta* to be seen. On the other hand, *C. bidentata* is now abundant, though its oviposition has hardly begun. Towards the end of July, *O. spinipes* and *C. neglecta* are represented only by odd specimens, which have survived the mass of their brethren, though *C. bidentata* is still to be found somewhat plentifully.

C. bidentata, when about to deposit her eggs, searches for a full-grown larva of *O. spinipes*, at, or immediately after, the period of spinning. *O. spinipes*, in the completion of her burrow, fills up the mouth with clay long before the most accessible cells can contain full-grown larvæ; but it happens, that, in a large proportion of cases

(about half), the wasp meets with some accident, and her burrow remains uncompleted, the cell last constructed being thus only protected by the wall of clay that was to serve as a party wall between it and the succeeding one, had the wasp lived to complete her work. Such slightly protected cells are those chosen by *C. bidentata* for her oviposition. I once found satisfactory evidence of *C. bidentata* having burrowed through half-an-inch of the clay stopping placed by the wasp over one of these cells. The parasite was in the burrow, covered with the dust brought down into it by her excavation to form an entrance,—a passage too small for the wasp to enter, but just large enough for herself; and in the cell thus reached by her were to be seen her eggs freshly deposited. On another occasion, a *C. bidentata* alighted on a spot I was examining, and where I had partially exposed some cocoons of *O. spinipes*; she commenced to carefully investigate them with her antennæ, and now and then to scratch away some earth partly covering them; she did not, however, deposit any egg, possibly because the inmates of the cocoons were not in proper condition.

When a cocoon contains eggs of *C. bidentata*, there is often to be found, at its upper end, a minute aperture, through which the ovipositor of the *Chrysis* has been thrust; at other times, this aperture is wanting, simply, I believe, because the larva of *O. spinipes* had not done spinning her cocoon when the *Chrysis* deposited her eggs within it. There is nearly always a small spot outside on the yellow silken top of the cocoon, as if the *Chrysis* had attacked it first with her jaws; and those containing *C. bidentata* may be selected by this mark from a number of cocoons of the *Odynerus*. One of the most remarkable points of their history is, that *C. bidentata* does not deposit one egg only in the cocoon of the *Odynerus*, but actually drops in from six to ten eggs. These do not appear to be placed in any particular position, but simply fall on the enclosed larva; and the excess in number may obviate the destruction caused by the latter, especially when its movements are still active, before the completion of its spinning operations. In the instance above noted, where I found *C. bidentata* in the burrow of *O. spinipes*, the cocoon of the latter contained five eggs in good condition. The wasp larva had ceased to spin, but had not yet shrunk to those smaller dimensions which it rapidly assumes soon after that period. In various other instances, I found two healthy eggs of *C. bidentata*, but often only one, the shrivelled cases of from four to eight others being found with the healthy eggs. I never found any evidence of the hatching of two eggs of *C. bidentata* in the same cell;

which, though it seems a likely, would certainly be an awkward, occurrence. *C. bidentata* remains longer than *C. ignita* in the egg-state. Of a number reared by me from the egg, most were hatched two days after they were collected, but one remained for three days, and another did not hatch until the fifth day, and from the time of hatching the larvæ were eleven days in becoming full-fed. The eggs of *C. bidentata* are 1.5 millimetres in length, white, cylindrical, and very slightly arched; those of *O. spinipes* are larger, 2.5 millimetres in length, yellow in colour, and more arched. I failed to detect the egg of *C. neglecta*, principally, I believe, because the interval between its being deposited and hatching is so short, and also because I did not quite know where to look for it. It probably resembles that of *C. bidentata*, and is to be found at the time the cell is closed up by *O. spinipes*, and for only a few hours afterwards; but of this I was not aware at the proper season.

The young larva of *C. bidentata* seizes that of *O. spinipes* with its jaws, pinching up a fold of skin, and contrives to extract fluid nutriment from it, without, apparently, making any aperture in the skin, until it approaches to mature growth itself. I have very carefully examined larvæ of *O. spinipes* that were thus half sucked away (I cannot say eaten), and I could find no mark at the spot whence I had just removed a larva of *Chrysis*. I have several times squeezed the *Odynerus* larva firmly, without any fluid exuding; even when squeezed almost to bursting, on only one occasion did a drop of clear fluid exude. Nor is the *Chrysis* larva particular as to where it seizes the *Odynerus*; any point that may offer itself to its jaws being seized.

When the devourer is nearly full-grown, and the victim is very flaccid, a process that may be called eating takes place, and the *spinipes* larva almost entirely disappears. The manner in which the larvæ of *C. neglecta* and *ignita* and of *O. spinipes* itself eat the little green grubs is precisely similar; when young, they merely suck the juices of several, and sometimes return to and finish these when they are larger, but they may often be found neglected when the larva is full-grown.

The larva of *C. bidentata* casts its skin four times during its growth, at tolerably regular intervals, of about two days. I have twice seen this process in operation: the skin splits down the back of the anterior segments, and the corneous covering of the head splits into two lateral halves, which remain attached to the skin when the shedding is completed. As compared with the larvæ of the *Lepidoptera* and *Coleoptera*, they feed up so rapidly, that one marvels how they have time to change their skins so often; many a *Lepidopteron* requiring four or five days

for the process of once changing its skin, whilst *C. ignita* is fed up in six days, during which it has found time to change its skin four times. I was also struck with the similarity between the larva of *Chrysis* and that of *Odynerus*; a similarity that seems to be a true and not a superficial one. Throughout its existence, the larva of *spinipes* is yellow, its viscera are tolerably visible through the integument, especially portions of a yellow tortuous duct in the lateral dorsal region from the fifth segment backwards. In *Chrysis*, the larva is white, and its interior is more masked by masses of white fat. The first spiracles, which, though usually situated in the second (the head being the first), belong properly to the third segment, are in *Chrysis* at the anterior margin of that segment; but, in *O. spinipes*, they are actually in the second segment. The form of the head and parts of the mouth are very similar in both. This resemblance between the two larvæ is closer than that between the larvæ of *spinipes* and of the common wasp (*Vespa vulgaris*); and, in those points in which the larva of *Chrysis* least resembles that of the *Odynerus* (e.g., form of jaw, distinctness of viscera as seen through the skin, and colour), it resembles *Vespa vulgaris* more than *O. spinipes* does. I have not been able to seize any characters to distinguish the larvæ of *C. ignita*, *bidentata*, and *neglecta* from each other.

C. neglecta spins a compact oval cocoon from 5 to 10 millimetres in length, of a greyish-white and blackish silk, in layers, similar to the cocoons of various ichneumons, *Ophion* for example; this is surrounded by a looser layer of brown silk, similar to that which loosely fills up the rest of the cell of *O. spinipes*, and some remains of the little green grubs are always to be found at the bottom of the cell. The cocoon of *C. ignita* is rather longer than that of *C. neglecta*, of a much slighter texture, and with hardly any loose silk about it.

The cocoon of *C. bidentata* is contained in that of *O. spinipes*, the cocoon proper occupying the lower half of the cell, and its roof being an almost mirror-like diaphragm of brown gummy silk stretched across the centre of the cocoon of the *Odynerus*, the walls of which, above the diaphragm, are also covered by a thin layer of silk spun by the larva of *Chrysis*; the lower part of the cocoon is in contact with the *Odynerus* cocoon all round, and contains in its walls three vertical whitish patches, rather thicker than the rest of the cocoon, which, when removed from that of the *Odynerus*, is translucent.

Like the larva of *O. spinipes* and other hibernating Hymenopterous larvæ, that of *Chrysis* shrivels to a certain extent after it has spun its

cocoon, the skin becoming loose and being thrown into very fine folds; the head is bent forwards, and the lateral and sub-dorsal prominences, which in the tense shining skin of the full-fed larva can hardly be detected, are very distinct.

Passing the winter as larvæ, they remain in the pupa state less than three weeks before emerging, often however, if the weather be cold, remaining perfect inside the cocoon for many days. *C. ignita* and *C. neglecta* escape by cutting off circular lids from their cocoons; *C. bidentata* cuts out the diaphragm of its cocoon, and makes a circular hole in the top of the *spinipes* cocoon.

I may note here a distinction in colouring between the male and female of *C. neglecta*, which, as it is not noted in Mr. Smith's excellent Monograph of the group in the 'Entomologist's Annual' for 1862, may possibly not have been previously recorded; viz., that in the male the marginal sulcation of the third abdominal segment is blackish or purplish from the margin almost up to the row of fossulets; whereas in the female the darker colour is confined to a line on the extreme margin of the segment.

It is, perhaps, worth pointing out, as bearing on the doctrine of the survival of the fittest, that *C. bidentata* destroys those larvæ of *O. spinipes* that probably most strongly inherit the weakness, whatever it may have been, that led to the death of their parent.*

Abergavenny,
September, 1869.

Occurrence in Britain of Bledius spectabilis, Ktz.—In a note at p. 281 of the second vol. of the "Insecten Deutschlands," Dr. Kraatz has described, in a few lines, under the name of *spectabilis*, a species of *Bledius* closely allied to *B. tricornis*, Herbst, and found abundantly in Greece. Some little time since, however, M. Fauvel challenged the correctness of this new species, stating both that it was a southern variety of *B. tricornis*, and that Dr. Kraatz had mistaken the true *tricornis* of Herbst. Dr. Kraatz, upon this, returned to the question in the Berl. Ent. Zeit., 1868, p. 346; re-affirmed the validity of the two species; and established their synonymy (about which there has been much confusion) in a most satisfactory manner.

Bledius tricornis has been for a long time in the British catalogue, and I have now the pleasure of making known that *Bledius spectabilis*, Kr., is also a British species; and at the same time of shewing, from its geographical distribution, that it cannot be a southern form of *B. tricornis*. I have found *B. spectabilis* in great

* The opponents of that doctrine might, however, reasonably urge that the majority of the causes of incompleteness of the ordinary number of *Odynerus*' cells would, in all probability, be direct and incapable of transmission; such as the death by violence of the parent during the work (she being then peculiarly liable to injury, on account of her engrossment in the cares of maternity), the non-adaptability of the soil for a proper nidus, a failure of adequate food for the larva, a sudden accession of tempestuous weather preventing further mason-work, &c.—Eds.

abundance in the salt marshes at Dumfries, also near Edinburgh, at Brighton, and at Weymouth. *B. tricornis* I have never found but on one occasion, viz., at Deal, in the spring of 1863, when I had the pleasure of taking it in some numbers during a collecting expedition, in which I was accompanied by Mr. Frederick Smith and his son Mr. E. A. Smith. I imagine, therefore, from my own experience, that the greater portion of the *B. tricornis* of our British collections will be found to be *B. spectabilis*, Kr. The two species, though exactly alike in point of colour, are easily enough distinguished when the males are examined; for *B. spectabilis* is considerably the larger of the two, and more sparingly punctured on the thorax and elytra, and its male has on each side of the head a short pyramidal elevation, which can in no sense be considered a horn; while in *B. tricornis* this elevation is replaced by a short but distinct horn. When these characters have been perceived in the male sex, the females of the two species are easily separated by the differences in size and punctuation.

The synonymy, as given by Dr. Kraatz (quite correctly, I believe), runs thus:—

<i>tricornis</i> , Herbst, Ol., Kr.	|	<i>spectabilis</i> , Kr.
<i>tricornis</i> , Er. (Col. Marck.).	|	<i>tricornis</i> , Er. (Gen. et spec.).
<i>nuchicornis</i> , Muls.	|	<i>tricornis</i> , Muls., Fauvel.

As far as M. Fauvel is concerned, I have verified the synonymy by sending him a specimen of *B. spectabilis*, taken by me in Scotland, and obtaining from him its name as *B. tricornis*. What the insect is that he understands as *B. spectabilis* I have no idea (neither, judging from the above synonymy, has Kraatz); but it would be interesting to know.—D. SHARP, Eccles, Thornhill, Dumfries, Nov. 10th, 1869.

[My own short series of *B. tricornis*, from Deal, is apparently correctly named. But I find next to them three specimens, obtained lately from Mr. Brewer, solely on account of their large size, and taken by him on the Norfolk coast, I believe, which are evidently *B. spectabilis*. In addition to the characters mentioned above for that species, I observe that in these three the thoracic horn of the ♂ is much longer than in *tricornis*; the thorax is less bulky in proportion to the elytra, with the sides rather straighter, the contraction behind not quite so rounded, and two irregular smooth discal spaces, starting from each side of the middle line and directed backwards, much more elevated and decided than in *tricornis*; and the black colour of the elytra more confined to the base. It will be observed, that, in this larger insect, the frontal horns exhibit a *diminution* of size, so that it cannot be considered a more highly developed form of *tricornis*.—E. C. R.]

Occurrence in Britain of Myllæna glauca, Aubé.—Some time ago, I took in *Sphagnum*, on Wimbledon Common, a *Myllæna*, which I could not satisfactorily refer to any of our recorded species, and which so distinguished an authority in that genus as Mr. Matthews also failed to identify. Hoping to be able to name it after that gentleman, I sent it for examination to M. A. Fauvel, who returned it as *M. glauca*, Aubé, which M. Fauvel has recently, in 'L'Abeille,' identified with *M. elongata*, Kraatz. Subsequently to this determination, Dr. Sharp has observed to me that the *elongata* of Matthews is specifically distinct from Kraatz's subsequently described insect of the same name; remarking that the former is common

in Scotland, running in muddy places on the banks of rivers and streams, whilst the latter occurs very rarely in England and Scotland, in *Sphagnum*. *M. Aubé's glauca* must, therefore, be added to our list, and *M. elongata*, Ktz., must be suppressed. It may readily be distinguished from *elongata*, Matthews, by its smaller size and darker colour, the palpi and legs especially being nearly black.—E. C. RYE, 10, Lower Park Fields, Putney, S.W., November, 1869.

Note on Phytonomus Julinii, Sahlberg.—M. Capiomont, in his recent 'Révision des Hypérides,' Ann. de la Soc. Ent. de France, 1868, vol. 8, p. 153, considers this insect (which he, apparently with correctness, indentifies with the *Hypera alternans* of Stephens) as decidedly distinct from *P. Pollux*, of which the late Mr. Walton thought it to be a mere color variety. The addition of *P. Julinii* to our lists as a good species has already been made, and on the authority of M. Capiomont; but I have thought it may not be altogether useless if I were to enumerate the characters upon which that gentleman proposes to separate it from *P. Pollux* (four species intervene between them in the work above quoted), as the insect is not uncommon here ("assez commun en France," p. 152; "assez rare en France," p. 155), and observers in different parts of the kingdom may be more fortunate than I, in finding those characters sufficiently constant.

M. Capiomont, when treating of *P. Julinii* (p. 155), after stating generally that the pattern of its elytra, which are regularly and alternately lineated with dark and light scales, is sufficient to separate it from all the species allied to it, and is constantly the same, remarks that its form is rather different from that of *P. Pollux*, which, and especially its male, is always more slender, its female being more elongate. He states also that the striæ of the elytra in *P. Julinii* are better defined, the absolute punctures being wider, squarer, and better marked; the interstices are more regularly shagreened, and have coarser scales; and the thorax is always less cylindrical.

At p. 160, treating of *P. Pollux*, and commencing with the somewhat contradictory statement that it has *exactly* the form of *P. Julinii*, he enumerates (in addition to the above characters) the following points of discrepancy:—the rostrum is a little longer in *Pollux*, ♀, and the depression between the eyes is generally better marked; the thorax is less rugulose punctured (though, as he admits, there are exceptions on this point); the colours of the elytra, instead of being separated by distinct intervals, are confused, so that they are uniformly variegated with grey and black, always excepting the 3rd and 7th interstices, which are variegated with white for a greater or less portion of their length; the punctures of the striæ are more uneven; the interstices are more shagreened (in *Julinii* more regularly shagreened, p. 155); and the female of *Pollux* is never so ventricose as the same sex of *Julinii*. M. Capiomont finally notes that, among the numerous specimens of *Pollux* that have come under his observation, he has never seen a single individual with the elytra almost lineated as in *Julinii*, or even with the coloration so disposed as to permit the suspicion of a passage from one species to the other. But he specifies a var. of *Pollux* having dark elytra with the 3rd and 7th interstices almost entirely, and the bases of some of the other interstices, whitish; and admits connections between this var. and the type.

As far as my own experience goes, I may remark that I have never found *P. Julinii* except in the company of *P. Pollux* (though the converse does not hold good), and that I find the thoracic outline, and size, &c., of the punctures of the striæ and of the interstitial scales do not afford *constant* diagnostic characters.—ID.

Notes on certain British Hydropori recently brought forward by Dr. Sharp.

HYDOPORUS OBSOLETUS, Aubé. I have in my collection two examples of this species: one given me by Dr. Power, the other taken by myself at Gosforth.

H. NIGRITA. I am very much inclined to think that the two insects separated by Dr. Sharp [Entomologist's Monthly Magazine, Vol. vi, p. 82], are only the sexes of one and the same species; the glossy, strongly punctured, pubescent one being the male, and the obscure, less punctured, nearly glabrous one, the female. I have the species from the south of England, and it has occurred to me in several localities in Durham and Northumberland, rather sparingly, and copiously in Cumberland, where it affects the runners from springs on the moors. In every one of these instances the two forms were taken in company, and in nearly equal numbers. This, I think, would not have been the case, had they been distinct species. The last time I met with this species was on a moor near Lanercost, in July, when I took about one hundred individuals. This series furnished me with varieties of both forms, principally in dilatation of the sides of the thorax, in the apices of the elytra, and in sculpture, colour, and pubescence; in both sexes the paler-coloured examples are the most thickly furnished with hair. The general shape is the same in all, the fovea on the clypeus in all is alike, the margins, and angles of the thorax are also alike, whilst the antennæ and legs are similarly maculated with fuscous.

Surely, Herr Thomson, when he wrote his "*Conspectus Specierum*," (Skand. Col., ix, 73] must have had some other species in view, for he places *pubescens* (*nigrita*, Shp.) in a section of which he says "*prothorax lateribus crasse marginatus*;" whereas, in both sexes of our *nigrita*, the thorax is very finely margined at the sides.

By the kindness of Mr. Crotch, I have examined a pair, ♂ ♀, of *H. discretus*, Fairm. The male is a little larger, a little wider in front, somewhat less convex, but much more finely and closely punctured than any male *nigrita*; the pubescence, colour of the antennæ and legs are alike. The female is similar in form to the male, has the same alutaceous upper surface and paucity of pubescence as my female *nigrita*, but is darker in colour, and has the punctures on the thorax and elytra much finer. A long series, from various localities, may possibly show this species to be only a form of my *nigrita*; my series (33 ♂, 30 ♀), however, does not enable me to unite them. I strongly suspect that *H. brevis*, Sahlb., is founded on a small female form of my *nigrita*, which has the apex of its elytra somewhat prominent; and if *H. glabellus*, Thoms., be another form of it, the sculpture of the upper surface has been omitted, as it has been in the descriptions of many other female *Hydradephaga*.

H. MONTICOLA, Sharp. I have taken this insect both in Northumberland and Cumberland, generally in mossy holes on the moors. Mistaking it for *H. melanarius*, Stu., I have sent it to some of my friends as such. It is, however, abundantly distinct from that species.

H. PARALLELUS, Sharp. I have a single specimen of this species, which was taken by a friend in the north of Northumberland.

H. INCOGNITUS, Sharp. I had eight examples of this species, taken in various places in this vicinity, three of which have been lost in the post. Some years ago, I separated it as distinct from *palustris*, but, on sending it to London, was told that it was only an immature variety of that commonest of all commoners.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, 18th October, 1869.

Pterostichus madidus a vegetable-feeder.—My friend Mr. Jas. Hardy writes me that he caught a specimen of this common beetle eating a bean, which was still green, and had been crushed by a passing foot; thus adding another to the list of vegetable-feeding *Geodephaga*.—ID.

Captures of rare Coleoptera in Devonshire.—On 10th October last, I took, on the wing in my conservatory here, a specimen of a minute Trichopterygian, which, as Mr. Matthews tells me, is *Actidium coarctatum*, Haliday, of the greatest rarity in this country, having been found only by its describer in Ireland, and (single specimens) by Dr. Sharp and Mr. Crotch on the Chesil Bank. It appears to be recorded also from Sweden, the south of France, and Egypt. I also take here, in company with the common *Lathridius minutus*, what I consider to be *L. assimilis*, Mann., with alternately raised interstices to the elytra, and usually dark legs; otherwise extremely resembling *L. minutus*.—T. V. WOLLASTON, Barnepark Terrace, Teignmouth, November, 1869.

Occurrence of Bembidium obliquum at Manchester.—On a warm sunny day in last April, an example of the above rare beetle occurred to me at Clifton, near Manchester, in a similar habitat to that recorded at page 219, vol. v, of this Magazine. In May last, I captured *Harpalus neglectus* at the foot of the sand hills at Southport, near the New Hotel.—T. MORLEY, 29, John Street, Pendleton, Manchester, November 13th, 1869.

Capture of Anisoxya fuscula, Gyll.—I have lately met with a single example of this rare Heteromerous beetle near here, crawling on a stone wall, a singular situation for such a species. I have also taken (near here) *Cryphalus binodulus* in abundance; *Mycetochares bipustulata* in decayed oak, but more often dead than alive; *Brachytarsus scabrosus*, in exceeding abundance about May, in most white-thorn hedges; and *Colon brunneum* (2), by sweeping in the evening.—H. MARSH, 842, Old Kent Road, S.E.

Note on Asiraca clavicornis, Fab.—Early in the morning of the 1st June last I found myself in Dartford, and, unexpectedly, with a lucid interval of half-an-hour to wait for the next train to London, chains and slavery. Then there revived within me a fond recollection of the lane “within easy distance” (as the house-agents say), where the males of *Drilus flavescens* used to abound; where the female doubtless then existed, and might possibly now be found; where *Asiraca clavicornis* had once or twice been swept up by Mr. Rye; and where representatives might still exist. Filled with these ideas, I startled a chemist by an abrupt demand for

a small glass bottle without poison in it, got it, and left him evidently wondering at my haste, and perhaps thinking that I *did* mean to put poison in the bottle. And so I did, for a little further on I stole a leaf (only one and that very little) from a laurel bush, crushed it into the bottle, and strode on. Arrived at the lane,



I was soon prostrate on the sunny, grassy bank, poked about the roots of the grass, saw several *Calyptonotus pedestris*, and one *Asiraca*, ♀, which at once perched daintily on my hand. She had emerged from the base of a tuft of grass, looking for all the world like an *Ochsenheimeria Birdella*, and I rewarded her confidence by paying her more than heroic honour in placing her above the laurel. Here is a rough contemporaneous portrait of one of her ancestors, and so true are the lineaments of the race, preserved by nature, that this "false presentiment" may serve for the exact likeness of my captive.

History, it is said, repeats itself. On the 7th October instant, I was at the same place, under similar circumstances, and I again found one *Asiraca*, this time a male, and one pupa. Having posted up my friend Scott with these data, he has since had the felicity of taking "a lot" of this extraordinary species in the said place, among the roots of grass.—J. W. DOUGLAS, Lee, October 16th, 1869.

Notes on the earlier stages of Nothris verbascella.—On coming to Norwich, one of my first objects was, of course, to find *Nothris verbascella*, and before I had been here many weeks, I had obtained from Mr. Jas. Reeve (who recorded its capture in the "Intelligencer" years ago) directions where to find it. Accordingly, on October 20th, 1868, I went to the locality indicated, and found in the undeveloped leaves at the heart of the plants of *Verbascum pulverulentum* very young larvæ already at work, eating out these leaves and filling the empty space with black frass, but leaving the woolly covering of the leaves almost untouched. All through the winter they continued to feed slowly, and when the leaves began to grow in the spring the larvæ rapidly increased in size and voracity. At this time, however, and through the spring, fresh ones appeared to be hatched, for at the end of April, when many larvæ were well grown and a few had entered the pupa state, there were still plenty of minute ones, and this continued to be the case till the middle of June; and even as late as July 3rd, when the plants had thrown up their flower spikes two or three feet high, half-grown larvæ were still to be found feeding in the younger leaves, and even boring into the leaf, stalks, and stems. At the same time pupæ were to be found in a slight web, on the under-side of the large lower leaves, generally in the angle of two ribs, or in a turned-down edge of a leaf.

My first specimen of the perfect insect emerged indoors on May 22nd, and they continued slowly to come out till the middle of July; while at large I noticed the first flying late in the evening of June 25th, and the last on August 15th, but in the perfect state they are seldom seen.

The habits of the larvæ are curious. They do not *mine* a leaf, that is, they eat the whole of the solid substance, but take care to leave the soft down with which it is covered, and this is so thick as to form a complete protection for them. Indeed, so necessary is this covering of down to their comfort, that when placed

with pieces of leaf in a box to be brought home, although they will make a silken passage at the corner of the box, they always continue to detach sufficient down from the leaf to completely cover the silk, and when about to become pupæ always cover the cocoon with the same material.

Sometimes a large plant of the Mullein is so full of larvæ that all the young leaves are completely eaten out as fast as they appear, and a curious mass is found on the centre of the plant composed of the down of all these leaves and the excrement enclosed, and in this mass the largest larvæ generally reside, having galleries through it, but it is never used to assume the pupa state in. When at last, from the older larvæ having spun up, the shoot is able to make a start, it carries up with it traces of their ravages in scarred and blackened marks all up its sides which take some time to heal.

The history of this insect will therefore appear to be :—That the eggs are laid in July and August, in the hearts of seedling plants of *Verbascum pulverulentum*, that part hatch in the autumn, and the rest in the spring; larvæ, consequently, feeding from September or October till July, and the perfect insects appearing from the end of May till August.—CHAS. G. BARRETT, Norwich, 14th September, 1869.

Description of the larva of Hydræcia micacea.—On the 22nd of June, 1869, I received from the Honble. T. de Grey, a larva, which proved to be that of this species; and, more recently, the following note :—

“I first observed the larva by pulling up, on the 14th May, a sickly-looking plant of *Equisetum arvense*. It appeared to be feeding on the root and stem below the surface of the ground, but, when placed in a bottle with a supply of the food-plant, it immediately entered a stem, and fed upon the inner substance, hollowing it completely out, and ejecting the frass at the lower end.

“The larva moved readily from one piece into another, and thrived upon this food till May 28th, when I supplied it with *Equisetum fluviatile*, on which it fed well till June 21st.”

On arrival, this larva was $1\frac{1}{8}$ inch in length, rather slender, cylindrical, and tapering just a little at the posterior extremity, its head as wide as the second segment, the upper lip and mandibles large, the transverse folds and segmental divisions rather deeply cut.

The colour of the back and sides down to the spiracles was a rather deep purplish red-brown, without gloss, and a little paler on the thoracic segments and at the divisions; the sides below the spiracles, the belly, and the legs were paler, and of a dingy flesh colour: the head ochreous-brown, and mandibles blackish-brown; a polished pale ochreous-brown semi-circular plate on the second segment, rather broadly margined in front with blackish-brown; a small shining pale ochreous plate on the anal tip, having a terminal border of very small dark brown warts: the other tubercular warts arranged in the situation usual in stem feeders, also blackish-brown in colour, and emitting each a fine hair; the spiracles black; the prolegs tipped with brown.

At the beginning of July, the larva had attained $1\frac{3}{4}$ inch in length, and had become moderately stout in proportion, having meanwhile gradually grown paler on the back; and by the 10th of the month, the upper and under surfaces were

both alike of a deep smoky dull flesh colour, the dorsal pulsating vessel just visible as a faintly darker stripe of the same; the warts, however, still dark brown, and the head and plates as before described.

Hitherto the larva had fed well on both species of *Equisetum*, but it now ceased eating, and began excavating a hole in the earth, at the side of its pot, in which, by the 15th, it had changed to a light ochreous-brown pupa, but without forming any cocoon!

The pupa was $\frac{3}{4}$ -inch long, moderately stout, presenting no unusual peculiarity of form, but ending in an anal spike, which was inserted in the earth, and on the two last segments were a few fine short bristles pointing backwards. The moth emerged on the 14th of August.

Soon after the above larva came into my possession, I identified it with my figure of one sent to me by Mr. Steele, of Congleton, on the 10th July, 1866 (which proved to be infested with *Microgaster alvearius*), and also of some others in May, 1867, then quite small, and all of them feeding in the roots of Dock, but which I unfortunately failed to rear to the imago state.—WM. BUCKLER, Emsworth, October, 1869.

Abnormal habits observed in Ennomos lunaria.—The following vagaries in the "life history" of *Ennomos lunaria* may possibly be of interest to the readers of E. M. M. In August, 1868, I found five pupæ of this insect at the roots of ash trees, in Derbyshire, being, at the time, ignorant of their identity. At the end of April, 1869, all emerged, viz., three females, and two males. From a pair, I obtained a considerable number of eggs, all of which, except twelve, I sent away to various applicants. The eggs which I had reserved, hatched the third week in May. Two larvæ died, and the remainder became pupæ at the end of June. Early in July, I came to this place, and, in arranging my larvæ, pupæ, &c., I put those of *lunaria* into what I call "my next year's box," taking it for granted that they would remain in "statu quo" throughout the winter, as the others had done,—and as this species always does, according to my experience. In the first week of August however, upon looking into the box, I found a male had emerged and spoiled itself. A few days later another male appeared, and at intervals, three females. Then followed an interregnum, but on or about the 20th of September, a male and female emerged simultaneously. These paired, and the female laid about 50 eggs. Though this proceeding was quite opposed to my previous experience, I did not trouble myself, taking for granted that the eggs would remain dormant until the following spring. Judge my dismay as well as astonishment, when, the first week in October, I found every egg had hatched, and the young larvæ unusually brisk and active. I thought this too bad, as I knew their food-plant would fail before they were full-grown. However, I bestirred myself, and procured some as tender birch as I could find. Placing this in a bottle of water within a glass cylinder, I awaited the result. It struck me at once that the young larvæ were all "abroad." They were restless and uneasy, and did not take kindly to their food. However, at the end of the month, they had passed through the second moult. Seeing then that it would be impossible to rear them, the birch leaves being destitute of nutriment, I threw them away. Whether, had I kept them, they would have hibernated, or preferred dying of starvation, I cannot say. I thought that I was now

at the end of my tether, when lo! on November 1st, emerged another fine female, quite full of eggs! This was *too* much, and I have this day (November 2nd) terminated its existence. All these proceedings are at such variance with my previous experience of the insect, that I have thought them worth recording.—J. GREENE, Apsley Road, Redland, Bristol.

P.S.—Everything seems out of joint. This day (November 8th), has just emerged the largest and finest female *Eupithecia albipunctata* I ever saw. I may just remark that all my cages, boxes, &c., are placed in a room at the top of the house, without a fire, and facing the north-east.—J.G.

Note on the odour of Sphinx convolvuli.—Early last September, my cousin (who resides some half-mile from hence) showed me a live male *convolvuli* which had been picked up on his door step by a boy. The creature had evidently flown at the light over the door, and had been stunned by coming sharply in contact with the glass. On handling it, I noticed that the odour of musk (as observed by Mr. Hellins in a previous communication to the Magazine) was strongly perceptible. The sequel is curious:—After keeping it covered over with an inverted tumbler for three or four days, my cousin removed the thing from its prison, believing it to be dead or nearly so. When the gas was lighted up the same evening, however, the family were suddenly surprised by the great moth taking wing, flying at the light, and eventually immolating itself in the flame.—H. G. KNAGGS, 49, Kentish Town Road.

Note on the development of the larva in the hybernating ovum in Lepidoptera.—I am anxious to obtain information bearing on the following point: “In those species of *Lepidoptera* which pass the winter in the egg-state, is the larva developed within the egg shell *before* or *after* hybernation?” and shall be much obliged to anyone who has by him eggs of *C. neustria*, *C. elingaria*, any of the genus *Ennomos*, *M. rubiginata*, *C. immanata*, *prunata*, *testata*, or *populata*, *E. cervinaria*, *H. popularis*, *C. graminis*, *L. cæspitis*, or any other species, if he would kindly examine three or four eggs, and let me know the result; off hand I am inclined to think the larva is not developed till *after* hybernation, but this is only a guess, which I should now be glad to have confirmed or disproved by an appeal to facts.—J. HELLINS, Exeter, November, 1869.

Xylina semibrunnea and *Agrotis saucia* at Dover.—I have to record the capture of *Xylina semibrunnea* at ivy-bloom, on the 29th October, in excellent condition. On the 26th October, I obtained four very fair examples of *Agrotis saucia*.—E. WHITE, 2, Spring Place, Dover, 13th November, 1869.

List of Noctuidæ observed in Perthshire and Morayshire in 1869.—In the early part of this spring, I visited Crieff, in Perthshire, intending, should the locality turn out promising, to remain there during the whole season. The situation of Crieff is very beautiful, and the romantic Strathearn has much mixed wood and high moorlands on either side. The climate, however, is far colder and moister than in Morayshire. One of my first operations in the month of March was to sugar a few trees, but I found nothing beyond the usual *C.*

exoleta, *C. vaccinii*, and *S. satellitia*. Later on, when the weather became milder, I frequently took out my lantern at night to search the low herbage for larvæ. From the broom I took full-grown ones in plenty of *T. pronuba*, *orbona*, *fimbria*, and a few *janthina*. The moss growing on walls and tree stumps also yielded many pupæ of *T. orbona*, *H. thalassina* and *adusta*, *R. tenebrosa*, *X. rurea*, and one *A. herbida*. The following *Noctuæ* were taken up to the early part of July, when, owing to the dearth of insects, I returned to Forres, in Morayshire. On the whole, the past season has been a very poor one for sugaring; for, on reference to the list of captures last year (vol. vi, p. 201), it will be seen that many good things never occurred at all, while others, which swarmed in 1868, only turned up as odd specimens. Probably, in a better season, Crieff would yield a better result, if diligently worked.

Noctuæ taken at Crieff.—*T. batis*; 28th June: scarce at sugar. *A. psi*; 9th May: several pupæ, also with net. *A. ligustri*; 23rd May: pupæ on ash trees under moss. *A. rumicis*; 28th June: rare, at sugar. *L. lithargyria*; 7th July: very common with net, also at sugar. *L. comma*; 27th June: with net. *L. impura*; 3rd July: rare, with net flying over rushes. *X. rurea*; 14th May: common with net, also from pupæ under moss on stumps. *X. polyodon*; 25th June: common at sugar, also taken with net. *C. graminis*; 27th June: larvæ found under stones at Ferntower. *M. anceps*; 23rd June: not uncommon, with net. *M. furva*; 25th June: rare, with net. *M. brassicæ*; 22nd June: common, with net and at rest. *A. basilinea*; 23rd June: common, with net. *A. gemina*; 22nd June: not unfrequently with net: one very remarkable variety was taken. *A. oculæa*; 3rd July: common, with net. *M. fasciuncula*; 30th June: very frequent, with net. *C. cubicularis*; 26th June: common, at rest and with net. *R. tenebrosa*; 21st May: very numerous at sugar, also bred from pupæ enclosed in a tough cocoon attached to stones. *A. segetum*; 24th June: very common, some specimens very puzzling, one indeed, hard to distinguish from *A. cinerea*. *A. exclamatoris*; 24th June: common, at sugar and with net. *A. porphyrea*; 27th May: larvæ and pupæ near Loch Turrit. *T. janthina*; 2nd May: larvæ at night on broom. *T. fimbria*; 3rd April: bred a fine series from larvæ found on broom. *T. orbona*; 1st May: larvæ on broom with the foregoing. *T. pronuba*; 7th May: larvæ on dock, &c., very common at sugar. *N. augur*; 5th July: with net. *N. plecta*; 24th June: rare, with net. *N. festiva*; 8th July: with net. *N. rubi*; 5th July: rare, with net. *T. piniperda*; 14th April: common at willow blooms. *T. gothica*; 31st March: common at willows, also at sugar. *T. rubricosa*; 12th April: common at willows. *T. instabilis*; 10th April: common at sugar and willows. *T. stabilis*; 31st March: common at willows. *T. cruda*; 14th April: willows, not common. *C. vaccinii*; 22nd March: very common at sugar and willows. *S. satellitia*; 6th March: common at sugar and willows. *X. cerago*; 27th April: larvæ swarming in the catkins of willow. *A. herbida*; 20th June: bred from pupa found here. *A. advena*; 29th June: common, with net. *A. adusta*; 10th May: not uncommon at rest, also with net. *A. glauca*; 27th June: one, with net. *A. dentina*; 29th June: with net. *A. oleracea*; 27th June: with net, not unfrequent. *H. thalassina*; May 7th; pupæ very common. *M. rectilinea*; June 26th: took three very fine specimens of this beautiful moth at sugar. *C. exoleta*; 6th March: very common at sugar and on willows. *C. umbratica*; 26th June: rare, with net.

Noctua taken at Forres.—*A. psi*; 27th July: at sugar, larvæ very common. *A. leporina*; 25th August: beat larvæ from birch. *A. ligustri*; 24th July; rare, at sugar. *A. rumicis*; 1st September: swept larvæ from heather. *A. myricæ*?; 24th August: my excellent friend, Mr. G. B. Longstaff, beat from heather, two hairy tuberculated larvæ, which can scarcely be any other than this species. *L. conigera*; 12th July: exceedingly common at sugar and ragwort, varying a good deal in colour. *L. lithargyria*; 10th July: very abundant at sugar, varies much in colour. *L. pallens*; 12th July: swarming at sugar, also on ragwort. *H. nictitans*; 19th August: not uncommon at sugar. *H. micacea*; 12th August: not uncommon at sugar, also at rest. *X. rurea*; 31st July: at sugar, surely very late. *X. polyodon*; 10th July: swarming at sugar, and varying from the ordinary southern type to bistre-brown and black. *C. graminis*; 5th August: on ragwort by day. *C. cytherea*; 28th July: two specimens, one at sugar and the other at a "Cossus Birch;" an interesting addition to the Morayshire list. *L. testacea*; swarming at rest, at sugar, and with net, varies a good deal. *M. abjecta*; 31st July: sugar, not found before, I believe, so far north. *M. anceps*; 19th July: occasionally at sugar. *M. brassicæ*; 19th July: commonly at sugar and also at rest. *A. gemina*; 12th July: not unfrequent at sugar. *A. oculatea*; 15th July: abundant at sugar, also on ragwort by day; as usual, very variable. *M. fasciuncula*; 10th July: swarming at sugar, also on ragwort by day. *M. literosa*; 20th July: at rest, also at sugared trees. *C. blanda*; 12th July: rare, at sugar; an addition to the Morayshire list. *C. cubicularis*; 19th July: common at rest, also with net. *R. tenebrosa*; 23rd July: common. *A. valligera*; 28th July: not uncommon at sugar and on a "Cossus Birch," on ragwort by day. *A. suffusa*; 15th August: common at sugar up to November. *A. saucia*; 29th September: took two at sugar, never heard of this insect so far north before. *A. segetum*; 20th August: at rest. *A. lunigera*; 28th July: not uncommon at sugar. *A. exclamationis*; 10th July: abundant at sugar. *A. corticea*; 15th July; not unfrequent at sugar, also with lantern on ragwort. *A. cursoria*; 11th August: not unfrequent, by smoking out of "Bents," on the Culbin Sands. *A. nigricans*; 4th August: common under stones in barren fields, also at sugar. *A. tritici*; 4th August: swarming at rest, at sugar, and under stones with the last; varies immensely in size, colour, and markings, some specimens closely resembling *obelisca*. *A. aquilina*; 14th August; rare, with net. *A. agathina*; 14th August: in great profusion flying over heather, rarely at sugar. It is very difficult to take this moth in perfection. I know no insect that so soon loses its freshness, owing to the looseness of the scales. The best plan to capture it is to light the lantern, and watch the places among the heather which are partly sheltered with trees. The insect appears to fly for about a quarter of an hour briskly over the heather, after which it settles for half-an-hour or so, during which time it may be found on the heather bloom; the slightest shake, however, causes it to fall like a stone, when it is usually lost. After this half-hours' rest, it flies again, and must be taken with the net and lantern. This period yields by far the greatest number of moths. *A. porphyrea*; 16th July: abundant flying over heather, larvæ afterwards in profusion. *A. præcox*; 5th August: smoked out of "Bents" on the Culbin Sands, also two specimens at rest in a greenhouse and one in a spider's web, same place. *A. pyrophila*; 29th July: smoked out of "Bents" on the Culbin Sands, also two specimens at rest in a house. *T. subsequa*; 10th September: only one or two specimens at sugar, very late, and

in bad condition. *T. orbona*; 22nd July: swarming at sugar, also on ragwort by night; as usual, varying much in colour and markings. *T. pronuba*; 16th July: very abundant at sugar and at rest, many remarkable varieties. *N. glareosa*; 18th August: not uncommon with net, at sugar, also on heather and broom. *N. C-nigrum*; 31st July: at sugar. *N. depuncta*; 13th September: one forlorn individual put in an appearance in wretched plight. *N. augur*; August 1st: common at sugar. *N. festiva*; 19th July: not unfrequent at sugar, also on ragwort. *N. conflua*; 20th July: frequent at sugar, also on ragwort by day. *N. Dahlii*; 10th August; scarcer this season than usual, also late and badly coloured. *N. rubi*; 23rd July: rare, at sugar. *N. umbrosa*; 5th August: on ragwort by day. *N. baja*; 28th July: common at sugar. *N. neglecta*; 20th August: not unfrequent at sugar and flying over heather. *N. xanthographa*; 17th July: common at sugar and on ragwort by night. *T. piniperda*; 18th July: larvæ. *O. macilenta*; 15th September: common at sugar. *A. rufina*; 8th September: abundant at sugar, some remarkably beautiful varieties. *A. litura*; 28th August: very common at sugar. *C. vaccinii*; 13th September: swarming at sugar, varying in colour and markings to a surprising degree. Some specimens have the lines in slate-blue, while others have the wings suffused with black lines and blotches. I fear *C. spadicea* must be dropped from my last year's list, having mistaken some varieties of this insect for it. *S. satellitia*; 13th September: abundant at sugar. *X. cerago*; 26th July: at rest. *X. silago*; 21st September: beaten from a birch tree. *X. ferruginea*; 6th September: in great profusion at sugar. *E. fulvago*; 7th September: Mr. G. B. Longstaff took it once or twice at sugar. *C. trapezina*; 10th September: at sugar. *D. capsicola*; larvæ abundant on *Lychnis vespertina*. *D. cucubali*; 8th August: larvæ on *Silene inflata*. *P. chi*; 22nd August: very abundant at rest, also at sugar. *E. lutulenta*; 18th August: at rest on ragwort and heather by night, also under stones in a barren field. *E. nigra*; 10th August: very abundant at sugar, also hiding amongst pebbles on the paths. *M. oxyacanthæ*; 12th September: abundant at sugar. *A. aprilina*; 13th September: very frequent at sugar. *P. meticulousa*; 31st August: common at sugar. *A. occulta*; 16th August: taken by my friend, Mr. Longstaff, twice at sugar. *A. nebulosa*; 17th July: rare, with net. *H. protea*; 21st August: abundant at sugar and at rest; very variable. *H. dentina*; 19th July: at rest on wall. *H. oleracea*; 20th July: at sugar. *H. pisi*; 3rd September: larvæ found by Mr. Longstaff; an addition to the Morayshire list. *C. vetusta*; 25th August: common at sugar. *C. exoleta*; 7th September: in the greatest profusion at sugar. *A. myrtilli*; larvæ abounding on heather. *P. gamma*; 4th September: not so frequent as usual. *P. interrogationis*; 22nd August: one flying over heather at night—new to this locality. *A. tragopogonis*; 8th August: everywhere, at rest, also at sugar. *S. anomala*; 3rd August: very abundant with net, also at rest.

On my round of some 315 sugared trees, I frequently counted above 500, and on one occasion 846, moths.—GEO. NORMAN, Cluny Hill, Forres, October 30th, 1869.

[Some surprise having been expressed at the occurrence so far north of several species mentioned in Mr. Norman's Morayshire list for last year, we beg to say that we have very sufficient reasons for believing that he correctly determined his species, with the exception of the one he has cancelled in this paper. The productions of that district are evidently of a less boreal nature than are those of Rannoch.—Eds.]

Captures of Lepidoptera in the New Forest.—The following are our best captures taken in various parts of the Forest during the past season:—*L. sinapis*, common in May and June; *P. crataegi*, not rare, in young fir plantations; *C. Hyale*, saw one specimen in June; *A. Paphia*, very abundant (black variety, *Valezina*, 20 specimens); *A. Adippe*, common; *A. Aglaia*, males common, females rare; *V. polychloros*, common in the spring; the larvæ (from which we bred a fine series) were abundant in June. Our specimens emerged as early as the beginning of July. *L. Sibylla*, abundant, also bred from larva; *A. Galathea*, a few; *H. Semele*, common; *P. Argiolus*, males common, females three; *P. Ægon*, abundant; *N. Lucina*; *S. fuciformis*, common at rhododendron flowers; *S. bombylifermis*, 10; *C. porcellus*, *L. aureola*, *H. hectus*, *T. trifolii*, *C. miniata*, *L. mesomella*, *L. complanula*, *C. villica*, *A. fuliginosa*, *A. mendica*, *L. monacha*, *E. lanestris*, larvæ abundant on sloe and hawthorn, *E. advenaria*, *E. dolobraria*, *P. syringaria*, *B. consortaria*, *T. consonaria*, *P. cytisaria*, *N. viridata*, *E. porata*, *punctaria*, and *trilineararia*, *A. trigeminata*, *C. temerata*, *C. taminata* (abundant), *A. strigillaria*, *S. plumaria*, *M. liturata*, *M. rubiginata*, *S. undulata*, *L. viretata*, *T. chærophyllata*, *A. subsericeata*, *A. plagiata*, *E. palumbaria*, *M. euphorbiata* (common), *P. unguicula* and *hamula*, *E. punicealis* and *purpuralis*, *H. barbalis*, *E. glyphica*, *E. flammealis*, *E. fuscula*, *E. angularia*, *H. prasinana*, *A. caliginosa*, common, but worn. We obtained our specimens of this by sweeping the long grass in damp woods. I am kindly indebted to Mr. Capper and Mr. Owen for furnishing me with the exact locality for the species.

On the whole, sugar was unprofitable. Our best captures were *T. batis*, fresh from the pupa and in fine condition the first week in September, which is, I think, very late; *C. diluta*, *H. nictitans*, *C. cytherea* (abundant), *A. puta*, *A. saucia*, several, *N. umbrosa*, *baja*, *triangulum*, and *neglecta* (2), *C. diffinis*, *H. contigua* (1), *R. tenebrosa*, *T. fimbria*, *janthina* and *orbona*, *C. sponsa* (6), and *C. promissa* (2). Many other common species surrounded every tree. Besides the above, we captured an immense number of common species not worth recording.—J. E. & H. RAMSAY COX, W. Dulwich, S.E.

Lepidoptera captured at Darlington.—I annex a list of a few things which I have met with this season; all of them, excepting *C. albersana*, were taken within three miles of the town. With one exception, there is nothing very wonderful about them; the wonder is, that, though I have lived here and collected assiduously for the last twenty years, I never before met with them in this locality. *Thyatira batis*, one at sugar; *Macaria liturata*, common; *Mixodia Ratzeburgiana* (common among spruce firs) I never took before; *Halonota tetragonana*, one, beaten out; *Coccyx nanana*, in the same manner as *M. Ratzeburgiana*; *Retinia pinicolana*, common among Scotch firs; *Retinia pinivorana*, one, among Scotch firs; *Carpocapsa grossana*, one, beaten out; *Catoptria albersana*, one bred, larva in April; *Eupæcilia atricapitana*, one flying; *Lampronia luzella*, one, beaten out; *Cerostoma lucella*, a few from young oaks, I find that by day they generally drop straight down, but not towards evening; *Gelechia Mouffetella*, one bred; *Gelechia dodecella*, a few from fir; *Zelleria hepariella*, one, beaten out (no yew or privet in the wood); *Asychna profugella*, one, beaten out. The larva of *Gelechia rhombella* is very abundant in the apple bushes in hedges about the town. The moths are all of a very dark grey colour, none of them being light like southern specimens.—J. SANG, High Row, Darlington, September 6th, 1869.

Thera juniperata near Edinburgh.—On the 28th of October, I beat one sickly

larva (since dead) of this species out of juniper, on the Pentland Hills. This is the first time *juniperata* has been met with in this district.—A. WILSON, Edinburgh, November, 1869.

Note on Eupithecia helveticata.—On the same day, 14 full-grown larvæ of this species were beaten out. From the same localities I had larvæ in some number about the end of August, and many were then full-grown.

I forwarded a few larvæ to Professor Zeller, about the middle of September (by which date most of those taken were in pupæ or spun up), but have not as yet learned whether these have confirmed or modified his belief that *helveticata* and *arceuthata* are one species.

Although I have examined large numbers of the larvæ, I have as yet failed to see the points relied on by the Rev. Mr. Crewe, as separating it from *arceuthata*. As regards the imago, I find, in this district, that the *large* pale var. is scarce, almost black varieties more common, and medium shades by far the most common.—ID.

Additional note (and corrections) respecting the sexes of Papilio Merope.—In my note on p. 148 of the last number of the Magazine, for H. T. Usher, Esq., read H. T. Ussher; also at line 5 from bottom of page, for *Danaïs Nicarius* read *Danaïs Niavius*.

Since writing the above note, I have noticed a peculiarity in the outline of the wings of the sexes of *P. Merope* which I think worth mentioning. In the southern form the outer margin of the anterior wings is strongly undulated in both sexes; whereas in the western form (*P. Brutus*) the margin is nearly entire.—A. G. BUTLER, British Museum, October 10th, 1869.

Great abundance of Pieris rapæ.—On the 24th of August, immense numbers of *Pieris rapæ* suddenly appeared here, filling every garden with their swarms. On the 25th, they were still more numerous, and continued so until the 28th, when we had a storm of wind and rain, with a great fall of temperature, since which they have been much less abundant. Thousands were slain by the gardeners, some of whom were heard to say that for the first time in their lives they had done a day's work in entomology. I examined some scores of the killed, and all were, without exception, the small white, *Pieris rapæ*.—T. J. BOLD, Long Benton, September, 1869.

Great abundance of Thrips.—During the hot calm weather in August, immense numbers of a small black *Thrips* were on the wing in our neighbourhood, and were a great annoyance both to children and adults, by crawling upon their hands and faces, and sheltering amongst their hair. Many people declare that they were bitten by them. All flowers were much infested, and immense swarms came from the wheat fields, then in the process of reaping. These swarms entering by open doors and windows, were, in many cases, swept from the walls and floors like dust, whilst quiet corners, door-steps, and the like, were black with congregated thousands, much like what they were with *Aphides* in the cholera year.—ID.

ENTOMOLOGICAL SOCIETY OF LONDON, 1st November, 1869.—H. W. BATES, Esq., F.Z.S., President, in the Chair.

The President announced the presence at the Meeting of Dr. J. L. Leconte, one of the Honorary Members, a distinguished American entomologist.

Mr. Janson exhibited on behalf of Dr. Power, 7 species of *Coleoptera* new to the British lists, viz., *Triarthron Maerkelii*, Schmidt, taken near Esher in July, 1869, and also by Mr. O. Janson at Shirley, about the same time. *Silvanus similis*, Er., taken at Esher, on 4th August; *Nitpus gonospermi*, Duval, of which many specimens were taken by Mr. J. B. Syme in the Orkney Islands; *Bruchus lentis*, Schön., from Birch-wood and Gravesend; *B. nigripes*, Schön., from Brighton; *B. nubilus*, Boh., from Surbiton and Gravesend; and *B. canus*, Germ., from Gravesend; also *Phratora cavifrons*, Thoms. (see Ent. M. Mag., vol. v, p. 100), from Esher, Cowley, and Gravesend.

Mr. Grut exhibited a selection of *Coleoptera* taken by M. T. Deyrolle, at Trebizond, including four new species of *Carabus*.

Mr. M'Lachlan exhibited larvæ, pupa, and cocoon of *Mantispa styriaca*, sent to him by Herr Brauer, of Vienna, the species being parasitic in its earlier stages in the nest of a spider of the genus *Lycosa*; the young larvæ, on emerging from the egg, had moderately well developed legs, but became almost apodal as they approached maturity.

Mr. Smith exhibited a considerable number of *Meloe rugosa*, Marsham, which species had not been captured for many years. He found them near Prittlewell, in Essex, in the vicinity of the nest of an *Anthophora*. He had hoped to have exhibited them alive, but their pugnacious disposition caused them to mutilate each other to such an extent that he had very few perfect specimens left.

Mr. Müller exhibited part of his collection of galls, calling particular attention to two forms of maple galls, one on the leaf, the other on the footstalk; notwithstanding the difference in appearance and situation of these excrescences, he believed them to have both been produced by *Acarus aceris* of Kaltenbach.

Mr. Cutter exhibited, on behalf of Mr. Ward, a ♀ of *Ornithoptera Brookiana*, that sex being previously unknown; also a magnificent example of *Papilio Anti-machus*, from the interior of Old Calabar, the only known example having been the one collected by Smeathmann, a century since, and figured by Drury.

Mr. Wormald exhibited some *Rhopalocera* from Shanghai and neighbourhood, collected by Mr. W. B. Pryer. Among them were examples of the curious *Anthocaris*, with hook-tipped wings (*A. Scolymus*), hitherto only known from Japan.

Mr. Dunning exhibited some *Bombyces* sent from Shanghai by Mr. Holdsworth; among them insects identified as *Eona punctata* of Walker, *Lasiocampa remota* of Walker, and *Lebeda hebes* of Walker. Mr. Holdsworth mentioned having bred all three from one description of larva.

The President exhibited a drawing of an extraordinary larva sent by Mr. Henry Birchall from New Granada. It was apparently a species of *Chærocampa*, and was remarkable for the extraordinary form of the head, which resembled that of one of the venomous snakes of that country.

Mr. W. F. Kirby communicated a paper "On the Diurnal *Lepidoptera* of Gmelin's edition of the "*Systema Naturæ*."

Professor Westwood read some notes on the type collections in Sweden, viz., at Stockholm, those of De Geer, Paykull, Fallen, some of Schönherr's, and of Gyllenhal's, Dalman, Fries, Billberg, Sahlberg, Boheman, Stal, Holmgren, Thomson, Wallengren, Wahlberg, and the types of the "Eugénie's Resa;" in Upsala, those of Linné (Mus. Lod. Ulricæ), Thunberg, and Gyllenhal; in Lund, those of Zetterstedt, Dahlbom, Thomson, and Ljungh.

H. S. MONTAGU, from Boxley House, Stockwell Park, S., to 68, Cambridge Terrace, W.
W. ROGERS, from 22, Cross Street, to 12, Bromell's Buildings, Clapham, S.W.
GEORGE NORMAN, from Cluny Hill, Forres, to Ben Rhydding, Yorkshire.

EXCHANGES.

Eggs of Psilura monacha wanted.—I shall feel obliged if any of my correspondents, or any one who has them to spare, can send me a few eggs of *P. monacha*. I want them for an experiment. I shall be glad to purchase from any one having them to sell.—JOSEPH SIDEBOTHAM, 19, George Street, Manchester.

MR. THOS. HUTCHINSON, Grantsfield, Leominster, will feel truly obliged to any brother entomologist who, at the present or any future time, can favour him with ova or larvæ of any local species of Lepidoptera, especially *E. versicolor*, *P. bajularia*, *E. orbicularia*, *A. Blomeraria*, *M. alternata*, *L. ruficinctata*, *E. tæniata*, *E. expallidata*, *togata*, *S. viretata*, *C. fluctuosa* and *ocularis*, *D. Orion*, *A. tridens*, *strigosa*, *auricoma*, *H. croceago*, *T. retusa*, *T. oo*, *C. promissa* or *sponsa*. At all times he will thankfully make the best return in his power.

I have a number of fine set and un-set specimens of *Psilidognathus Friendii*, Harlequin beetles, and other S. American Coleoptera, to exchange for foreign Lepidoptera or Coleoptera.—The O'REILLY, 6, Denmark Terrace, Brighton.

I have a few *duplicates* of *H. aurantiaria* and *Myelois cribrum*, which I shall be happy to distribute to any gentleman wanting them, on receipt of box, with return postage.—C. S. MALLETT, Dunrobin Villa, 2, Alexandra Road, Hornsey Park, N.

Duplicates.—*N. cucullatella*, *N. senex*, *M. bombyliformis*, *E. vespertaria* (few only), *A. scutellata*, *A. incanaria*, *A. immutata*, *A. inornata*, *Eup. lariciata*, *Eup. minutata*, *E. subnotata*, *Collix sparsata*, *M. rubiginata*, *A. rumicis* (black var.), *L. pudorina*, *L. impura*, *T. piniperda*, *H. unca*, *Scoparia pallida*, and *Tortrix viburnana*. I shall be glad to hear from anyone wishing to exchange. Gentlemen not hearing from me within one week must conclude I am not wanting the species they offer.—T. J. CARRINGTON, 31, Holgate Road, York.

I have *duplicates* of the following for exchange: *T. pseudo-bombycella*, ♂ and ♀, (bred), *L. rubiella*, *C. sparganiella* (bred), *G. ericetella*, *G. proximella*, *P. Leuwenhockella* (bred), *P. bicostella*, *A. granatella* (bred), *G. tringipennella*, *C. saturatella*, *C. lineolella*, *C. virgauræ*, *L. paludicolella* (bred), *L. ochracælla* (bred), *A. terminella* (bred), *E. albifrontella* (bred), *E. rufocinerea*, *L. calidoniella* (bred), also pupæ, and *B. aurimaculella* (bred).—WM. SIMMONS, St. Mary's Terrace, Scarborough.

Exchange Lists are inserted free.

BRITISH INSECTS.

MR. J. C. STEVENS begs to announce that he will Sell by Auction, at his Great Rooms, 38, King Street, Covent Garden, on Friday, December 10th, 1869, at half-past 12 precisely, several small Collections of BRITISH COLEOPTERA and LEPIDOPTERA, including those formed by Mr. Brewer, who has gone abroad, and Mr. Trove Blackmore, who has given up the pursuit on account of ill-health. Many choice and valuable species are to be found in these Collections. Also the CABINETS and BOXES in which they are contained.

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LIST OF BRITISH SYRPHIDÆ.

BY G. H. VERRALL.

As I wish to rescue the British *Diptera* from the state of confusion in which they exist in most collections, I offer a systematic list of one of the most attractive families; hoping, in course of time, to supplement it with others. As Mr. Walker, in the "*Diptera Britannica*," has described 153 species of *Syrphidæ*, and I now give only 166, and even some of these doubtfully, I have not materially increased our number of species; but upwards of 20 of Walker's are sunk as varieties, and in many cases the nomenclature has been brought more into agreement with that in use on the continent. When I have marked a species with an asterisk, I have not been able to critically examine it, but believe it to be truly British. I intend to supplement the list with short notes upon a number of the species; and as a caution, I may remark that I do not consider it at all exhaustive, but anticipate raising it to at least 200 species.

BACCHA, *F.*elongata, *F.*scutellata, *Mg.*obscuripennis, *Mg.*SPHEGINA, *Mg.*clunipes, *Fln.*ASCIA, *Mg.*podagrica, *F.*floralis, *Mg.*dispar, *Wlk. (Mg ?)*hastata, *Wlk. (Mg ?)**geniculata, *Mg.*DOROS, *Mg.*conopseus, *F.*XANTHOGRAMMA, *Schin.*citrofasciata, *Deg.*ornata, *Mg.*SPHÆROPHORIA, *St. Farg.*scripta, *L.*dispar, *Lw.*picta, *Mg.*menthastræ, *L.*nitidicollis, *Ztt.*tæniata, *Wlk.*DIDEA, *Mcq.**alneti, *Fln.*SYRPHUS, *F.*pyrastræ, *L.*unicolor, *Curt.*laternarius, *Müll.*glaucius, *L.*albostratus, *Fln.*confusus, *Egg.*lunulatus, *Mg.*tricinctus, *Fln.*topiarius, *Mg.*grossulariæ, *Mg.*diaphanus, *Ztt.*ribesii, *L.*vitripennis, *Mg.*nitidicollis, *Mg.*nitens, *Ztt. ?*

latifasciatus, *Mcq.*

excisus, *Ztt.*

affinis, *Lw.*

flaviceps, *Rond.*

corollæ, *F.*

crenatus, *Mcq.*

luniger, *Mg.*

arcuatus, *Fln.*

lasiophthalmus, *Ztt.*

umbellatarum, *F.*

auricollis, *Mg.*

maculicornis, *Ztt.*

cinctellus, *Ztt.*

balteatus, *Deg.*

bifasciatus, *F.*

MELANOSTOMA, *Schin.*

hyalinata, *Fln.*

mellina, *L.*

scalaris, *F.*

gracilis, *Mg.*

maculosa, *Mg.*

ambigua, *Fln.*

concolor, *Wlk.*

PLATYCHIRUS, *St. Farg.*

manicatus, *Mg.*

albimanus, *F.*

cyaneus, *Wlk.*

peltatus, *Mg.*

scutatus, *Mg.*

*fulviventris, *Mcq.*

ferrugineus, *Mcq.*

inmarginatus, *Ztt.*

clypeatus, *Mg.*

PYROPHENA, *Schin.*

ocymi, *F.*

granditarsus, *Wlk.*

rosarum, *F.*

CHILOSIA, *Mg.*

cestracea, *L.*

intonsa, *Lw.*

pigra, *Lw.*

vulpina, *Mg.*?

barbata, *Lw.*

variabilis, *Pz.*

nigrina, *Mg.*

impressa, *Lw.*

albitarsis, *Mg.*, *Ztt.*, *Wlk.*

flavimana, *Mg.*, *Ztt.*

? mutabilis, *Fln.*

? *funeralis*, *Mg.*

flavicornis, *F.*

flavipes, *Pz.*

chrysocoma, *Mg.*

grossa, *Fln.*

chloris, *Mg.*

decidua, *Egg.*

? vernalis, *Fln.*

? *chalybeata*, *Mg.*

præcox, *Ztt.*

pulchripes, *Lw.*

means, *Ztt.*, *Wlk.*

subalpina, *Rond.*

scutellata, *Fln.*

soror, *Ztt.*

scutellata, *Wlk.*

maculicornis, *Bons.*?

pubera, *Ztt.*

pedemontana, *Rond.*

sparsa, *Lw.*

antiqua, *Mg.*

nigripes, *Mg.*

maculata, *Fln.*

LEUCOZONA, *Schin.*

lucorum, *L.*

CHRYSOCHLAMYS, (*Rond.*) *Wlk.*

cuprea, *Scop.*

BRACHYOPA, *Mg.*

bicolor, *Fln.*

RHINGIA, *Scop.*campestris, *Mg.**rostrata*, *Deg.*, *Wlk.*rostrata, *L.*VOLUCELLA, *Gffr.*bombylans, *L.**plumata*, *Deg.*pellucens, *L.*inflata, *F.*inanis, *L.*SERICOMYIA, *Mg.*borealis, *Fln.*lappona, *L.*ARCTOPHILA, *Schin.*mussitans, *F.**superbiens*, *Wlk.*ERISTALIS, *Ltr.*sepulchralis, *L.*æneus, *Scop.**stygius*, *Newm.*cryptarum, *F.**nubilipennis*, *Curt.*tenax, *L.**vulpinus*, *Mg.*intricarius, *L.*arbustorum, *L.**fossarum*, *Wlk.*rupium, *F.*pertinax, *Scop.**similis*, *Fln.*pratorum, *Mg.*nemorum, *L.*horticola, *Deg.*HELOPHILUS, *Mg.*floreus, *L.*nigrotarsatus, *Schin.*trivittatus, *F.*hybridus, *Lw.*pendulus, *L.**similis*, *Curt.*versicolor, *F.**frutetorum, *F.*lunulatus, *Mg.*transfugus, *L.*lineatus, *F.*vittatus, *Mg.**Ruddii*, *Curt.*MERODON, *Mg.*equestris, *F.*clavipes, *F.*TROPIDIA, *Mg.*milesiformis, *Fln.**rufomaculata*, *Curt.*SPILOMYIA, *Mg.*speciosa, *Rossi.*XYLOTA, *Mg.*segnis, *L.*lenta, *Mg.*nemorum, *F.*sylvarum, *L.*SYRITTA, *St. Farg.*pipiens, *L.*BRACHYPALPUS, *Mg.*bimaculatus, *Mcq.**femorata* (Criorhina), *Wlk.*CRIORHINA, *Mcq.*ruficauda, *Deg.**ranunculi*, *Pz.*berberina, *F.*asilica, *Fln.*oxyacanthæ, *Mg.*floccosa, *Mg.**regula*, *Fln.*MYOLEPTA, *Newm.*luteola, *Gmel.*EUMERUS, *Mg.*sabulonum, *Fln.**selene*, *Mg.*ornatus, *Mg.*lunulatus, *Mg.**strigatus*, *Fln.**litoralis, *Curt.*ORTHONEURA, *Mcq.*elegans, *Mg.*nobilis, *Fln.*

CHRYSOGASTER, *Mg.*
splendida, *Mg.*
metallina, *F.*
discicornis, *Mg.*
metallica, *F.*
viduata, *L.*, *Fln.*
Macquarti, *Lw.*
splendens, *Mg.*
chalybeata, *Mg.*
cœmeteriorum, *L.*
? fumipennis, *Wlk.*

PIPIZA, *Fln.*
noctiluca, *L.*
bimaculata, *Mg ?*
notata, *Mg ?*
flavitaris, *Mg ?*
guttata, *Mg.*
quadrinaculata, *Pz.*
quadriguttata, *Mcq. ?*
vana, *Ztt.*
noctiluca, ♂, ?
lugubris, *F.*
luctuosa, *Mcq.*

CNEMODON, *Egg.*
acuminata, *Lw.*
vitripennis, *Wlk.*

PIPIZELLA, *Rond.*
virens, *F.*
biguttata, *Curt.*
flavitaris, *Wlk.*
Heringii, *Ztt.*

**interrupta*, *Hal.*
 **melancholica*, *Mg.*

PARAGUS, *Ltr.*
tibialis, *Fln.*
sigillatus, *Curt.*
obscurus, *Mg.*
femoratus, *Mg.*

CHRYSOTOXUM, *Mg.*
sylvarum, *Mg.*
arcuatum, *Wlk.*
? marginatum, *Wlk.*
arcuatum, *L.*
scoticum, *Curt.*
octomaculatum, *Curt.*
elegans, *Lw.*
intermedium, *Wlk.*
festivum, *L.*
vernale, *Lw.*
bicinctum, *L.*

PSARUS, *Ltr.*
 **abdominalis*, *F.*

CALLICERA, *Pz.*
ænea, *F.*

MICRODON, *Mg.*
mutabilis, *L.*
apiformis, *Wlk.*
devius, *L.*
apiformis, *Curt.*

CERIA, *F.*
conopsoides, *L.*

* * I shall feel much obliged to any gentleman who possesses any *Syrphidæ*, if he will allow me to examine them. It will be a benefit to both of us, as it will improve the arrangement and nomenclature of his collection, and increase my knowledge of the British species. I should like anybody willing to send to put the whole of his specimens in a store box, and send them by train; as I think types picked out to send by post would miss many allied species.

The Mulberries, Denmark Hill, S.E.; December, 1869.

DESCRIPTIONS OF TWO NEW SPECIES OF *LEPIDOPTERA RHOPALOCERA*.

BY W. C. HEWITSON, F.L.S.

CHARAXES CINADON.

Upper-side. Male rufous-brown. Both wings crossed beyond the middle by a rufous band, broadest where the wings meet, narrow and in the form of a V at its commencement on the costal margin: both wings black from the band to the outer margin. Anterior wing with two black spots within the cell, and three or four larger black spots on the inner border of the band: a marginal series of rufous spots. Posterior wing with a sub-marginal series of lunular rufous spots: the margin black: two minute spots of lilac-white at the anal angle.

Underside. Both wings with the central band (which is narrower than above on the anterior wing) silver: three spots in the cell, two below these, one at the end of the cell and three touching the central band, all black bordered with silver: a sub-marginal band of grey, bordered towards the anal angle with black. Posterior wing with a black band at the base bordered with silver: three brown bands bordered with silver parallel and near to the inner margin, a band near the base silver at its commencement on the costal margin, black below bordered with silver and in the form of a V where it runs parallel to the bands last described: three or four black spots on the central band and beyond it a band of black spots bordered outwardly with silver: a sub-marginal band of spots and the outer margin black, bordered with silver: two spots of silvery-grey bordered with black at the anal angle.

Exp. $3\frac{5}{16}$ inch. Hab. Natal.

In the collection of Mr. Christopher Ward. This species, one of the most beautiful of the genus, decorated as it is profusely with silver, was taken by Mr. Morant, who describes it as exceedingly swift in flight.

OPSIPHANES ORGETORIX.

Upper-side. Male dark rufous-brown. Anterior wing crossed from the costal margin beyond its middle to the anal angle by a curved rufous band, broadest where it crosses the discoidal nervures: three sub-apical white spots. Posterior wing with a tuft of hair having its origin near the end of the cell: the outer margin broadly rufous.

Under-side rufous, beautifully undulated and spotted with dark brown and white. Anterior wing with a brown spot near the base, a quadrifid spot in the cell bordered with black, a broad transverse dark brown band before the middle: the outer margin rufous-brown, bordered

inwardly with rufous-yellow in arches on its inner margin, and traversed by two linear arched bands of black; a sub-apical oval ocellus with rufous border, and for pupil a line of white: some apical spots of white. Posterior wing with two large ocelli bordered with black, one touching the costal margin at its middle, marked by a semi-circular white line; the other towards the anal angle, marked by a round spot bordered with black, and irrorated with brown and yellow, crowned by a line of white: the outer margin broadly rufous, its inner border zigzag.

Female dark rufous-brown. Anterior wing crossed near the middle by a nearly straight band of *lilac-grey*. Posterior wing with the outer margin broadly orange-yellow. Under-side exactly as in the male.

Exp. $4\frac{1}{6}$ inch. Hab. Nicaragua (Chontales).

In the collection of W. C. Hewitson,

I am indebted to Mr. Belt for this very interesting addition to my collection. The male on the upper-side scarcely differs from *O. Berecynthus*, which, with all the other species we know, has a female like itself. This species alone has a female very dissimilar in the colour and position of the band of the anterior wing.

Oatlands, Weybridge: December, 1869.

ON SOME BRITISH CYNIPIDÆ,
BY THE REV. T. A. MARSHALL, M.A.

(Continued from Vol. iv, p. 275.)

In former papers I have endeavoured to enumerate British species as far as the genus *Aulax*, inclusive. I have now to deal with the remaining sections, (1) INQUILINÆ, (2) APHIDIVORÆ, and (3) PARASITICÆ. The first of these consists in Britain at present of the genus *Synergus* alone. These insects form a natural link between the gall-makers and the carnivorous groups that follow. They are found abundantly in all galls, upon the interior substance of which they are supposed to feed in the larva state, although they contribute nothing to the formation of the excrescence. Their position in life, is, therefore, similar to that of the cuckoo-bees, *Apathus*, &c., which are not carnivorous, but avail themselves of the labours of others for support. The real proprietor of a gall infested by *Synergi* never arrives at maturity, so far as I have been able to observe. The reason of this seems obscure. Several inquilines will emerge from a gall of *C. lignicola*, intended only to accommodate a single *Cynips*. They cannot have sustained themselves on the flesh of the *Cynips*, which would be insufficient for more

than one. It does not appear, then, why the *Cynips* should not come forth uninjured; as the contents of these large galls seem to be more than enough both for the legitimate owner and the intruders billeted upon him. These guest-gallflies have been a fruitful source of error to observers. No less than 7 of the species described by Linné as raising galls, are in fact referable to the genus *Synergus*. The numerous species have found no describer but Hartig, whose brevity renders it unlikely that any one should succeed in identifying them with certainty. The second group, the *Aphidivoræ*, consists of the numerous and minute species of the genus *Allotria*, which live in the larval and pupal states in the bodies of plant-lice, and stand first among the genuine parasites. They are distinct from those which follow by their structure, which closely resembles that of *Cynips*. The members of the third* group are all true parasites, infesting various insects, and especially, it would seem, appointed to keep down the numbers of the Dipterous order. I shall now give a short table of the British genera, before proceeding in my proposed attempt to reckon up the indigenous species.

- I. Facies prope clypeum striolata. Pronotum sensim declivè. Terebra exserta. Coxæ posticæ distantes 1. SYNERGUS, Hart.
- II. Facies haud striolata. Pronotum verticale. Terebra haud exserta. Coxæ posticæ approximatae.
- A. Scutelli fovea cyathiformis, marginata. Abdomen segmento 2^{do} maximo, cæteris brevissimis. (*Eucoilidæ*.)
- a. Alæ apice integræ, nec ciliatæ.
- b. Abdomen segmento 2^{do} basi haud tomentososo 5. COTHONASPIS, (Hart.) Thoms.
- bb. Abdomen segmento 2^{do} basi tomentososo.
- c. Metapleuræ haud tomentosæ. Alæ completæ. Antennarum articulus 1^{us} 2^{do} longior 4. EUCOILA, Westw.
- cc. Metapleuræ tomentosæ. Alæ abbreviatæ. Antennarum articulus 1^{us} 2^{do} parum longior. 6. GLAURASPIDIA, Thoms.

* According to Walsh, the genera *Aulax*, *Amblynotus*, and *Sarothrus* are inquiline. Some of the European species of *Aulax* certainly make galls. Of the habits of the other two nothing is known in Europe; and it seems better to leave our species where they are for the present.—T. A. M.

- aa.* Alæ apice marginatæ, longius ciliatæ,
—sed interdum desunt7. *KLEIDOTOMA*, Westw.

AA. Scutelli fovea nunquam marginata,
minimè cyathiformis, interdum nulla.

- a.* Abdomen fortius compressum, segmen-
tis ♂ 2—6 æqualibus, ♀ 5° maximo.
Antennæ ♂ 15-articulatæ.....3. *IBALIA*, Latr.

aa. Abdomen non aut vix compressum,
segmentis ♂ ♀ 2 — 6 inæqualibus.
Antennæ ♂ 14-articulatæ.

- b.* Scutellum basi haud foveolatum. Ab-
domen segmento 2° 3° longiore.....2. *ALLOTRIA*, Westw.

bb. Scutellum basi foveolatum vel bi-
foveolatum. Abdomen segmento
2° 3° non vel parum longiore.

- c.* Abdomen petiolatum, segmento
2° 3° non brevior.

d. Metathorax areolis 2 instruc-
tus. Petiolus striolatus,
coxis posticis brevior. Ab-
domen non compressum.....14. *ÆGILIPS*, Hal.

dd. Metathorax areolis nullis.
Petiolus lævis, coxis posticis
longior. Abdomen compress-
iusculum13. *ANACHARIS*, Dalm.

- cc.* Abdomen subsessile, segmento
2° 3° brevior.

e. Segmentum secundum dorso
in ligulam non productum,
simplex.

- f.* Scutellum fovea basali unica.9. *LONCHIDIA*, Thoms.

ff. Scutellum fovea basali gemi-
nata.

- g.* Oculi hirti.....8. *FIGITES*, Latr.

gg. Oculi nudi.

h. Segmentum 2^{um} basi
tomentosum.

- k.* Metapleuræ opacæ.
 Antennæ ♀ thorace
 longiores12. *AMBLYNOTUS*, Hart.
- kk.* Metapleuræ læves.
 Antennæ ♀ thorace
 non longiores11. *SAROTHRUS*, Hart.
- hh.* Segmentum 2^{um} basi
 nudum, glaberrimum.10. *MELANIPS*, Hal.
- ee.* Segmentum secundum dorso
 in ligulam productum.
- l.* Scutellum apice truncatum,
 haud mucronatum15. *ONYCHIA*, Hal.
- ll.* Scutellum apice mucrona-
 tum16. *ASPICERA*, Dahlb.

Mr. Haliday formerly detected a species allied to *Allotria*, but having the two apical joints of the antennæ connate. This he named in MS. *Charips microcera*. It is not included above, for want of types for description. All the above genera may easily be found by the collector except *Ibalia*, *Lonchidia*, *Onychia*, and *Aspicera*. *Ibalia* is a parasite of *Sirex juvenicus*, and is well known by Curtis's figure. It has probably not been met with since his time. *Onychia* I have never been able to find. *Aspicera* includes *Evania ediogaster*, Rossi, which has the scutellum produced into a horizontal spine; it is stated to be British in several books. A species of *Lonchidia*, having a dark spot in each fore-wing, was first noticed by Mr. Walker, and afterwards taken by me in Wales. *Synergus*, *Eucoila*, and *Allotria* are rich in species, and require much further investigation. *Synergus* may be bred from galls, or taken by beating oaks, *ad libitum*. The *Eucoilidæ* are parasites of *Anthomyia*, *Syrphus*, &c., and frequent *Umbelliferæ*, as does also *Figites*. The curious little *Glauraspidia* I have found rarely, in dark places, in woods. The minute *Kleidotomæ* occur in flowers,—and at least two sub-apterous species are to be sought on the sea shore, amongst *Algæ* (*Figites subapterus*, Walk., and *Kl. halophila*, Thoms.). *Ægilips* is common in flower gardens, and on windows. The petiole is not so long as that of *Anacharis*, which resembles a *Pelopæus* or *Ammophila*, in petto. *Figites* is easily distinguished from *Eucoila* by the scutellum, which in the latter has a singular cup-shaped fovea, margined all round. *Melanips* is sometimes common on nettles.

(To be continued.)

Observations on Necrophorus microcephalus, Thoms.—Herr Michow (Berlin. Ent. Zeit., X, p. 411) makes some remarks upon this species, entirely in accordance with my observations upon the subject in the "Entomologist's Annual" for 1866, and of which I add a translation, as likely to interest British Coleopterists.

"Among a great number of *Necrophorus ruspator*, Er., taken by me in Pomerania, is a ♂ exactly agreeing with the diagnosis of *microcephalus*, Thoms.; moreover, amongst these same *N. ruspator*, are two ♀, noticeable for their small and delicate build of body (analogous to *microcephalus*, ♂). These ♀ had the apex of the trochanter, as in the larger *ruspator* ♀, thin, pointed or obtuse; but I believed that I found a constant differential character for the small ♀ in the structure of the clypeus, whereby I referred them to the *microcephalus* of Thomson, whose diagnosis (clypeus of the ♂ with a membranous depression in the middle) I was inclined to complete thus:—"clypeus of the ♀ with a membranous depression near the anterior margin." But, after having examined my other species of *Necrophorus*, I am inclined to doubt the value of this as a diagnostic for ♂ as well as ♀. Large and small examples of *N. sepultor*, Charp., exhibit characters similar to those of *ruspator*; thus,—in large ♂ *sepultor* the inner apex of the trochanter is strongly developed, and projects laterally, whilst in small specimens it does not project laterally, and the projection sometimes entirely disappears, thus approximating to the ♀; the clypeus, also, in the larger ♂ has a deep membranous depression, reaching to the posterior margin, whilst in the smaller specimens the depression only reaches the middle. I have, moreover, a ♂ which forms a transition from the largest to the smallest ♂ *sepultor*, in the structure of the apex of its trochanters and of its clypeus. In the commoner species of *Necrophorus*, this structure of the clypeus and trochanters generally varies too much (as well in the ♂ as the ♀) for those parts to afford valid differential characters. Moreover, as in that genus the ♂ universally exhibits a preponderance of development in build of body, it is evident to me that our species individually exhibit in their smaller males a form which, whilst approximating very closely to the female type in general structure, also comes very near that type in the slighter development of individual organs, without thereby forming a separate species. In this view I am materially assisted by the fact that these smaller varieties exactly agree, as to pattern of the elytra, with the larger forms to which they specifically belong; whilst all the species of *Necrophorus* that are acknowledged to be good, and exhibit other constant and differential characters, are very distinctly separable by the elytral markings. If it be possible to indicate a like connexion, through intermediate forms, between *N. gallicus* and *N. fossor* (for which I have not sufficient material), then the former will constitute the type and the latter the less developed form of the same species."—E. C. RYE, 10, Lower Park Fields, Putney, S.W., November, 1869.

Note on Microptinus (Nitpus) gonospermi.—Referring to my remarks upon the supposed British origin of certain examples of this insect in the Annual for 1870, I may observe that I have just received a letter from Mr. Syme (too late for incorporation in that publication), wherein he says that *M. gonospermi* must not be put in the British lists on his authority, for he has no idea when he took it, certainly not in Orkney, where he took *Niptus crenatus* and no other of the *Ptinidæ*.

Mr. Syme adds that he has received many plants from the Canaries, and very likely the beetle came in some of these, especially as he took it in the house. These observations fully agree with my own recorded convictions.—ID.

Hemiptera at Folkestone.—When collecting *Colcoptera* at Folkestone in June last, I was particularly struck with the abundance of *Hemiptera-Heteroptera* in the vicinity of that town; certain of the larger species being especially plentiful. Perhaps the most common was *Eurygaster maurus*, varying from light drab or grey to a rich deep red-brown. This large and interesting insect was to be seen by the half-dozen, or more, at almost every sweep of the net among the grassy ditches on the hill slopes behind the town. Folkestone is the only locality given for it in Douglas and Scott's "British Hemiptera;" and the earliest time therein stated for it and the two species next mentioned, viz., July, may certainly be ante-dated by a clear month. It is excessively difficult, in mounting this bug, to persuade its legs to assume any other but a swimming position on the card. Equally abundant, on all kinds of plants, both in the above-mentioned places and all along the cuttings of the S.E.R. for many miles, was *Coreus hirticornis*; and the awkward looking *Enoplops scapha* occurred, almost as commonly, in similar situations. The prettily coloured *Eysarcoris melanocephalus*, for which the only locality given in Brit. Hem. is Darenth (where I have taken it in June, on the road near the "Fox"), also fell to my net sparingly; as did, once, *Ælioides inflexa*, on the Railway bank close to Sandgate Station: for this insect Folkestone seems a new locality. On the Warren, among large stones in grassy places at the bottoms of the cliffs, I found *Stenocephalus agilis*, on some half-dozen occasions, when looking for *Plinthus*. For this insect, which fully acts up to its specific name, both the time and locality appear to be new, as it is only recorded from Devon, in September. On the hill-slopes, I found one example of *Corimelana scarabæoides*, which has also occurred to Mr. C. O. Waterhouse and myself at Carshalton, and used to be taken by the late Mr. Robertson near Gravesend; these being all new localities. The common *Sehirus albomarginatus* was, also, frequently to be seen; and succeeded in "taking in" the unwary writer of these notes, who thought he had found a bug new to Britain, as none of the specimens he found had "the lateral margins of the pronotum yellowish-white," which they should have had, *teste* British Hemip. Of other plebeians *Piezodorus purpureipennis* (abundant at Wimbledon, on *Ulex*), *Pentatoma baccarum*, and *Podops inunctus* were especially common. The Schoolmaster of the *Hemiptera* must have been fearfully abroad in 1860, when the last mentioned bug was recorded in the "Intelligencer" as confounded with some *Cassidæ*; but I am afraid the number of students of that order in the present year are not so numerous in this country as to justify us in much self-exaltation.

Of minor species, taken at random, and kindly named for me by Mr. Scott, I may mention *Scolopostethus contractus*, *Peritrechus nubilus*, *Trapezonotus agrestis*, *Drymus sylvaticus*, *Zosmerus capitatus*, and *Monanthia cardui* and *costata*; none of them, save, perhaps, the last, worth the trouble of recording.

In the *Hymenoptera*, I found a specimen of the very curious and (for a *Chalcis*) large *Brachyneria flavipes*, when sweeping on the hill-slopes above referred to.—ID.

Notes on Nematus pedunculi, Hartig ("Blattwespen und Holzwespen," p. 388).

—In July of the present year, my friend, Mr. H. W. Kidd, sent to me from Godalming, a large batch of leaves of *Salix cinerea*, bearing on the under-side numerous slightly pedunculated pubescent galls of about the size of a large pea.

Their colour was throughout of an uniform green, a shade paler than the leaf itself, and they preserved this green tinge unaltered until the larvæ left them. They were placed principally in rows of two or three along the main ribs.

The base of deeply seated specimens protrudes sometimes through the upper cuticle, in which case it alone assumes a red tinge.

Each gall was tenanted by a single saw-fly larva, lodged within a cavity almost equal to the size of the gall.

When about a line and a-half long, the larvæ were whitish-green, their heads dark brown with a black spot each side, within which the eye was situated.

At 7.30 p.m., on the evening of the 10th July, I noticed a full-fed larva leaving one of the galls.

It first showed its head through a round hole *just gnawed*,* and scarcely large enough to get through. Gradually segment after segment was with difficulty worked out, a strong internal pulsation forward being perceptible all the time. The freeing of the last two or three segments seemed to give it the most trouble, as it rested repeatedly for several minutes after each effort. Why the hole was not previously enlarged enough to admit of an easy and quick exit, I do not understand, except on the supposition, that, when it is sufficiently large to pass the head, the larva's instinct prompts it to force its way out without delay, even with some inconvenience.

It took the larva in question about fifteen minutes to emerge, and, when clear of the gall, it rested, extended to its full length (3") for about seven minutes. It was now of a dull olive colour, the head dull pale brown.

Subsequently it became restless, and began to perambulate without interruption the interior of the jam-pot and the surface of the layer of earth therein contained.

Within a week's time a great number of companions gradually made their appearance, all displaying the same restless disposition, wandering day and night about their prison. But only very few burrowed and spun their thin coffee-brown cocoons of the size of a grain of wheat under-ground. The majority made no attempt to construct cocoons, and gradually died above ground, attacked by some insidious disease. For symptoms of this ailing, I took their becoming lazy, then immobile, stiff, and their assuming a dull reddish hue. When this change occurred, death generally set in within an hour.

Warned by this failure, which may perhaps be attributed to the close confinement and the dampness of the earth supplied, I separated a few still inhabited galls from the rest, and placed them in a large chip box without any earth. When the larvæ of this batch came out, the same impulse of wandering about was shown, but opening the box a few days afterwards, I found they had all disappeared.

I turned the leaves out of the box, expecting to find the cocoons attached to

* In this respect, this larva has a different habit from others of the genus, which long before their final exit, keep a hole open for the discharge of "frass," and an occasional promenade on the leaf.—A. M.

its crannies, but none were to be seen; so, knowing that an escape had been impossible, I carefully began to examine gall after gall, when it soon turned out that several of them were filled with the closely packed cocoons, divided only by walls, composed of frass intermingled with silken threads to keep the fabric together. Deprived of their usual resources, the sagacious creatures had crowded together in some of the most capacious galls, and spinning (against their custom) gregariously, had used their own frass as a substitute for earth.

The few perfect insects bred from Mr. Kidd's batch appeared 4—6 weeks after spinning their cocoons. They liberated themselves in the usual way, by cutting off the top of the cocoons with their mandibles.

In 1868, I collected a few of these galls near Penge, as late as October the 9th; the larvæ were full-fed about the 16th of the same month, but died in their cocoons. However, it is very likely that the autumnal brood passes the winter in the cocoon as larva, the fly appearing in spring. At the present time, the galls in all stages are plentiful in this neighbourhood. — ALBERT MÜLLER, South Norwood, S.E., 6th September, 1869.

On the examination of living gall-midges.—The circumstance, that the minute species of *Cecidomyia* are peculiarly liable to shrivel up, and to change their colours soon after death, particularly if the latter be brought on by artificial and quick means, necessitates their examination whilst alive, as most of the published descriptions, and very properly so, are drawn up from such specimens.

But, on the other hand, their great vitality and restlessness present considerable obstacles to the observer who attempts doing so.

After several unsuccessful experiments, I have accidentally hit upon a simple plan, which allows one to examine these delicate insects closely, whilst alive, and at the same time renders them immobile, as far as head, antennæ, body, halteres, and legs are concerned.

By exposing them to the scent of "Eau de Cologne" (and I find that anything stronger will *not* do), and, of course, without wetting them at all, they lose after a few minutes the power of moving their limbs; the wings alone are lifted up and begin to vibrate rapidly, so much so as to become almost invisible.

This state lasts about twenty minutes, during which time every other part is stiff and still, the sexual organs being generally much protruded, a matter of no small importance in the separation of closely allied, yet distinct species.

During this partial collapse of vital action, the midges, possessing still all the fullness of outline and colours of life, may be turned over and examined carefully, and when the sudden stoppage of the alary vibration indicates that the painless end has arrived, the investigation may be terminated by scrutinizing the neururation of the wings, and setting the flies for the collection, in which, however, their shrivelled bodies present, as a rule, anything but a good appearance. — ID.

Semasia obscurana, a gall inquiline.—There having been some doubt as to the identity of the *Tortrix* bred by Mr. C. W. Dale from oak-apples, as recorded by him in the November number, p. 146, we requested that gentleman to allow us to examine it, which he obligingly did. It appears to be a small starved example of *Semasia obscurana*, Steph., a somewhat rare species, generally found among undergrowth

in woods. With reference to this, we ask our readers to compare the late Senator von Heyden's Note on his *Grapholitha gallicolana*, in the Stettin. Zeitung for 1860, p. 118 ("Entomologist's Annual," 1868, p. 41). An examination of a type of *gallicolana* (which was bred from oak-apples) induces us to think it may only be a climatic form of our *obscurana*. Mr. Dale bred his specimen on the 23rd June, from oak-apples collected in the spring, near Sherborne. *Obscurana* occurs at Darent, and we hope some of our metropolitan entomologists will collect oak-apples there next spring; but the insect probably frequents all oak-woods, and will become common now that something is known of its habits.

Dr. Rössler states that the larvæ of *gallicolana* live through the winter in the old and dried galls of *Cynips quercus-terminalis* which are firmly fixed on the twigs of young oaks, and that severe winters seem to be fatal to them; after a mild winter, nearly every gall collected produced one or several of the moth.—EDS.

Notes on Psychidæ.—Bruand's name of *anicanella* is very apt for that species, as the ♀ has the anal tuft of a snowy whiteness. In the ♀ of *salicicolella*? this part is not altogether so white, particularly beneath, but it has a white bloom at the sides. The anterior wings of the ♂ of the last species are much elongated, in fact very different from any other I possess. The ♂ *anicanella*, on the contrary, much resembles in appearance specimens of our *intermediella* and *roboricolella*.

Judging by Bruand's description in his Manual, surely these two last are misnamed in our collections, as he describes the ♀ of the first to be much lighter-coloured than *crassiorella*, whereas our *intermediella* ♀ is by far the darkest of all we have, and he describes the ♀ of *roboricolella* as having a white anal tuft: ours has it brown.

In all probability, the mistake has arisen from male specimens only having been sent to the Continent to be named; without the cases and females in a fresh state, it would surely be impossible to determine a species.

Males of *intermediella* copulated most readily with females of *roboricolella*, and vice versâ, but I could not get males of *anicanella* to take to any females but those of its own species, and then only towards evening (the other species copulated at any time, even in broad sunshine).

It seems to be of a much more sluggish nature than the rest, more nearly allied, as its case proclaims to *Pysche fusca*, which flies most at dusk.

Anicanella I discovered for the first time this season, although I have worked our woods nearly 30 years.

I wish entomologists in other localities would interest themselves more with this little genus; but I am afraid its friends are few.

I have the young of three species now feeding on the trunk of an apricot in my garden, and growing capitally, but they are mixed.—ROBERT MITFORD, Hampstead, N.W., September 8th, 1869.

Life history of Emmelesia unifasciata.—I am indebted to Mr. J. Bryant for the specimens which have enabled Mr. Buckler and myself to work out the early stages of this species, which had long eluded our investigations.

I have taken the imago at gas-lamps here in Exeter, and have several times had eggs sent to me; and amongst other plants, I have supplied the young larvæ

with what now proves its proper food, namely, *Bartsia odontites*; but, owing to the rapidity with which this plant, when plucked and put in water, decays and becomes mildewed, I had always failed to rear them. In 1862, Mr. Buckler received from Dr. Holland, and figured, a larva now proved to belong to this species; but, as it soon died, the figure remained un-named, and nothing could be said about it.

In the second week of last September, Mr. Bryant sent Mr. Buckler eggs deposited by captured specimens of *unifasciata*; and, on being instructed by him what to look for, found that *Bartsia odontites* was growing plentifully in the locality in which the moths were taken; when, therefore, the eggs came on to me, I determined not to confuse the larvæ with a number of food-plants to pick and choose from, but put them at once on a potted plant of *Bartsia*. This was about September 14th, and, unfortunately, I was not able to devote much attention to them till the beginning of the present month, when (October 4th) to my dismay, I found the plant dead and decaying. However, a careful search enabled me to detect a solitary survivor crawling about on the damp rotten seed-pods, so I felt sure now that there was no longer a doubt about the food-plant; and finding that the field, which had supplied me with it here, had just been ploughed up, I got a supply at once from Mr. Buckler. The seed-pods on the sprigs he sent me were beginning to ripen, so partially opening one of them, I placed my little larva on it, and soon saw it hide itself within. I now left it undisturbed for a week, taking it for granted that it was going from pod to pod, and feeding up well; at last I thought I would look for it, and, after opening several pods as carefully as possible, found it stowed away in one of them; but, instead of being increased in bulk, looking shrivelled, and much thinner than when last seen. This was disappointing; but, taking comfort at the thought that more tender diet might suit it better, I asked Mr. Buckler to get some of the greenest pods he could find, and soon discovered that they were just what was wanted. On October 16th, I found my larva in the act of moulting within a seed-pod, and, after this, its last moult, a great change took place in its appearance and manner of life.

About this time, too, Mr. Bryant, having, at Mr. Buckler's instigation, searched carefully the *Bartsia* plants in his locality, found several larvæ feeding at large; and, as those which he kindly sent to Mr. Buckler exactly corresponded with the one I had reared, there was no difficulty in identifying their species; and from these together, with my own solitary specimen, the following account and descriptions have been drawn up.

The egg is laid in August, and larva soon hatched. Perhaps it feeds first inside the flowers of the *Bartsia*, but, at all events, we know that, whilst young, it lives within the un-ripe seed-pods, which it enters by a hole in the side, remaining hidden until all the seeds are consumed, the frass at the entrance hole alone showing its whereabouts. After its last moult, it no longer hides itself, and seems to have no difficulty with the ripening capsules and seeds, still making a hole as before, in the side, and inserting its head and front segments as far as it finds it necessary to get at the seeds, all the while holding on with its prolegs to the stem outside. It seems to become full-fed towards the end of October, and goes just under the surface of the ground for pupation.

The simultaneous change of habit and ornamentation at the last moult is very interesting, but I will leave wiser heads than mine to determine which is the cause of the other.

The eggs were too far gone for description when I had them. The newly-hatched larva is exceedingly small, yellow in colour, with a dark head. Afterwards it becomes paler, of a yellowish-white, and is to look at like a small maggot.

On October 14th, just before its last moult, I made this note of its appearance. Full $\frac{1}{4}$ -inch long, and plump, but able to stow itself away in a *Bartsia* seed pod; tapering towards the head, and not so much towards the tail; the skin smooth and glossy, the usual dots very minute, but distinct, being dark; the ground-colour yellowish-white; head dark brown; plate on 2nd segment pale brown; a sort of pale-brownish plate also on 13th segment, which looks darker from the tubercular dots on it being black. On a very close inspection, one can trace the course of the lines—soon to be developed distinctly, but they cannot yet be described as plainly noticeable.

Immediately after the last moult, its appearance is much prettier than at any other time, the ground-colour being of a pale delicate buff, and the lines very clear and almost black; but this contrast is soon lost, the ground becoming darker and dingier, and the lines paler and more diffused.

When the larva has become full-fed, the length is about half-an-inch, the figure stout, somewhat flattened; the segments 4, 3, and 2, tapering rather rapidly; the head still narrower than 2, and round in shape; half the 2nd segment scale-like and shining; the hinder segments also taper to the tail; the skin is rough and wrinkled; the tubercles dull white, furnished with short dark brown hairs: the ground-colour varies in different individuals—being greyish-yellow, greenish-grey, greyish-brown, or brown; the dorsal line blackish, beginning very fine on the front of each segment, thickening towards its end, and slightly interrupted at the fold; the sub-dorsal line more or less visibly continuous according to the depth of the ground colour, and may be described as a line of stout blackish dashes placed at the folds, sometimes connected by brownish streaks which fade away into the ground-colour about the middle of each segment; on segments 10 to 13, the dorsal and sub-dorsals unite to form a darker smoky streak, which tapers away to a point at the anal extremity: below the sub-dorsal comes a brown wavy line; the spiracular region is brownish above and more yellowish-white below, these colours not being definitely separated by a line; the black spiracles are placed in open spaces of the paler colour: at the 10th segment, the lateral lines fade away into the pale colour, thus forming a strong contrast to the united dark lines on the back; below the spiracles comes a clearly defined stripe of dark brown, followed by a broader one not so dark; the belly varied with yellowish and pinkish-white, with two indistinctly darker lines along it; the head and collar yellowish, the dark lines passing through them as freckled stripes.—J. HELLINS, Exeter, October 25th, 1869.

Description of the larva of Chilo phragmitellus.—On February 12th, 1869, I received from the Rev. J. Hellins, two larvæ of this species, and on the 28th, some more of them from the Hon. T. de Grey, in stems of *Arundo phragmites*, either hibernating or feeding (perhaps) on the knots inside. Early in April, I found one, that had escaped from the stems, very actively crawling about.

The larva is three-quarters of an inch in length, cylindrical, and tapering a very little behind; the segmental divisions deeply cut: each segment with only one sub-dividing and deep wrinkle.

The ground-colour of the back is pinkish-grey or pinkish-brown, the sides flesh colour, and the belly white.

The dorsal line very thin, is dark greyish-brown or pinkish-grey; the sub-dorsal stripe is of a similar colour but a little paler; the spiracular lines a little thinner and paler, though on the thoracic segments it is not linear but blotchy; the sub-spiracular line is thinner still and of the same pinkish-grey colour; the head is brownish-grey or pinkish-grey, with an ochreous tinge, having the large ocelli and the mouth blackish; on the back of the second segment is a pinkish-grey-brown semi-circular plate, and another on the anal tip; the small tubercular dots are dark brown, each having a fine bristle of the same colour; the spiracles black.

Previous to pupation, the larva gnaws an oval hole from within at the side of the reed, and covers it carefully with silk and bits of dry reed, so as almost entirely to conceal it, and which serves as an outlet for the moth.

The pupa is three-quarters of an inch long, moderately slender, and of nearly uniform bulk, tapering only at the two last abdominal segments; the anal extremity blunt and fringed with a circle of small hooks; its colour is a pale ochreous-brown, with but little polish. The moths emerged on June 4th to July 2nd.—WM. BUCKLER, Emsworth.

Notes on the larva of Acronycta alni.—A friend, who took a larva of this insect last summer, in Herefordshire, has communicated to me some curious facts regarding it, with permission to make what use of them I pleased. With a view therefore, of encouraging the search for this larva, so widely distributed, yet so rare, I send the following particulars:—

The larva was taken on alder, the 17th of July, and was not recognised as that of *alni*, being then black and whitish-grey, and resembling a piece of birds' dung (this comparison, it will be remembered, has been used before for this larva). After changing its skin, it showed clubbed hairs, and was recognised. It fed at all hours, by day as well as by night, resting on the *upper-side* of the leaf, and was very *easily dislodged*. It was sluggish, and drank freely. Surely this may be the explanation of so many having failed to induce this larva to feed in confinement, it wanted water. When about to change, it nibbled a large hole in a piece of cork, and, fastening the fragments together, framed its cocoon, and became a small pupa, with the abdominal segments rather long and pointed.

The larva was beaten in the usual way with umbrella and stick. It was not offered water till it got sluggish, and seemed preparing to change, when it had a bath given it, which "assists some larvæ in changing their coats." At this period, it rolled about, if disturbed, in a loose half-circle, speedily returning to a straight position. After changing its skin, it grew rapidly, and drank several large drops of water daily. As these were sprinkled on the leaves, it moved its head from side to side, and drank very quietly. At this time it was isolated, and had the choice of several sorts of leaf. It ate a little lime and a little oak, but only at first: afterwards confining itself to *small* alder leaves, at the lower end of strong shoots. There were several large oaks close to the alder hedge; also apple, lime, and nut in rear of the spot, where it was taken. The last moult was about the 22nd of July, and it turned to a pupa the first week in August. After changing its skin, it did not eat the cast-off coat, but left it on the upper-side of a leaf.--

BERNARD SMITH, Marlow, November 27th, 1869.

Abnormal second brood of Selenia illustraria.—Since my communication in last number respecting *lunaria*, a still more remarkable aberration has occurred with the above insect. A friend sent me a few larvæ, last spring, from which I had about half-a-dozen pupæ. To my great disappointment, these did not produce the summer insect, and I supposed them to be dead. In the last week, however, of November, a female appeared. This, in itself, was strange enough; but, what was far more remarkable, it was not of the summer form.—J. GREENE, Apsley Road, Redland, Bristol, December, 1869.

[We can share Mr. Greene's surprise at his insect not proving of the summer form.—EDS.]

Note on Morayshire Lepidoptera.—In the editorial note to my friend, Mr. Norman's list of *Noctuæ* at Forres, there is the following remark: "The productions of that district are evidently of a less boreal nature than are those of Rannoch." Now with all due deference to the editors, I think that "*less boreal*" should be replaced by "*less alpine*;" for, *æteris paribus*, Forres has as many boreal species as Rannoch; otherwise the two places can scarcely be fairly compared—one, a high-lying, cold, inland district; the other, low-lying, warm (Forres is one of the mildest and driest places in Scotland), and maritime. And it is to this maritime situation that I think Forres is indebted for its southern species. For taking the case of a common fern (*Scolopendrium vulgare*) and a common land Mollusc (*Helix aspersa*), we find that, although found throughout Britain, yet in the northern provinces they only occur near the sea (see Watson's *Cybele*, vol. iii, . 283, "the tendency of plants to linger along the coast-line to a higher northern latitude than that at which they will exist in inland situations"). Thus, I think that many of those southern species which appear to be isolated at Forres would be found at other parts (if otherwise suitable) of the northern coast line; e.g., the two southern species (not yet found at Forres) whose occurrence on the coast of Forfarshire I now record.—F. BUCHANAN WHITE, Perth, December 7th, 1869.

Lepidoptera new to the Scottish lists.—*Leucania littoralis* and *Heliothis marginata*, not hitherto recorded as Scottish, have been taken this summer by Mr. J. Bruce, on the coast of Forfarshire. *Phycis subornatella*, Dp., has been taken not uncommonly near Perth, both last and this summer by Mr. W. Herd. My determination of this local species has been kindly corroborated by Mr. Doubleday.—ID.

Pædisca oppressana at Norwich.—I have stumbled upon a new locality for *Pædisca oppressana* on some poplars not a quarter of a mile from my house, but only took two specimens; it seems very scarce. Perhaps the ground is already occupied, as *Spilonota neglectana* and *aceriana* abound on the same trees, while *Sesia apiformis* has honeycombed the bark and roots.—CHAS. G. BARRETT, Norwich, 16th November, 1869.

Occurrence of Xylina conformis and Dasycampa rubiginea in Monmouthshire.—I send you this, to tell you that Mr. T. Philipson, of Newport, Monmouthshire, has taken *Xylina conformis* at sugar on October 2nd, in that county, and a friend of his took another example a few days previously. On the 17th November, he took *Dasycampa rubiginea*, settled on the trunk of a tree.—WM. BUCKLER, Emsworth, 25th November, 1869.

Note on the scarcity of Lepidoptera in 1869.—I have been unable to work well since July ; but, independently of this, the past season appears to me to have been a wretched one for *Diurni* and *Geometræ*. Of *Noctuæ* I cannot speak, as my health will not allow of my sugaring. All the butterflies, except the *Lycenidæ*, have been scarce. Some of the blues, as *Arion* and *Argiolus*, have been unusually abundant, but these are about the only exceptions to the general scarcity of *Diurni*. A common Geometric pest, *M. fluctuata*, has been quite scarce this season, and even *bilineata* far from common, compared with its usual abundance.

One fact respecting the time of appearance of certain species may be worth noticing. Last year, *S. tipuliformis* was out in my garden on June 5th and 6th, and I took *L. Arion* on the next day. This year, I first saw *Arion* on June 13th or 14th, whereas the clear-wing was not out at all until the last week in June ; I think the 27th was the first seen, and yet I watched most carefully for it. This shows only a week's difference between early and late seasons for the *Lycæna*, and three weeks for the *Sesia*.—HERBERT MARSDEN, Brook Street, Gloucester.

Captures of Lepidoptera in Gloucestershire in 1869.—*L. Arion*, Cotswolds, near Gloucester, much commoner than usual, about June 15th ; *T. W-album*, three or four bred ; *A. Atropos*, a few pupæ in October ; *M. bombyliiformis*, not uncommon early in May ; *S. myopæformis*, bred, from apple bark, July ; *P. Geryon*, Cotswolds, near Gloucester, common, May ; *B. abietaria*, Cotswolds, near Gloucester, not common, July ; *A. emarginata*, usually a scarce insect here, but took several, August ; *Eup. satyrata*, only one specimen, where last year they were very common, Dursley, June ; *Eup. subnotata*, a few in the suburbs, new to the district ; *Eup. isogrammata*, a few worn ones flying over clematis, August ; *C. ocellaris*, one bred from pupæ dug last autumn, May ; *X. semibrunnea*, four at ivy, October ; *E. anguinalis*, Cotswolds, May, scarcer than usual ; *Botys pandalis* and *hyalinalis*, as usual, pretty common in beech-wood openings on the Cotswolds.—ID.

Captures of Lepidoptera, &c., in 1869.—The following is a list of some of the Lepidopterous insects I have taken, noticed or bred, during the past season. The several species to which Lytham is given as the locality were captured on Whit-Monday and Whit-Tuesday, May 17th and 18th.

Thecla W-album : bred a fine series ; larvæ from Doncaster.

Macroglossa stellatarum : I noticed this species on the cliffs at Scarborough, in July.

Zygæna loniceræ : on the cliffs at Filey, in July, the former species in profusion.

Chelonia plantaginis : in the larva state ; Norland moors.

Arctia fuliginosa : larvæ on the sand-hills at Lytham.

O. fascelina : larvæ on the sand-hills at Lytham, but not so commonly as I have noticed them in previous years, on other parts of the Lancashire coast.

O. antiqua : a larva brought to me from near Mirfield ; this insect, though so abundant in most localities, seems to be a scarce species here.

Bombyx quercus : larvæ common on the sand-hills at Lytham.

B. callunæ : common, Greetland moors and Linthwaite.

Boarmia perfumaria : larvæ on ivy at Golcar.

Acidalia inornata : bred ; larvæ from London. Before hybernation they feed on knot-grass, afterwards on dock.

Scodionia belgaria : common on the Greetland moors ; larvæ by sweeping the heath in April, imagos at rest on the ground in June.

Cheimatobia boreata : a few larvæ by beating birch on Black Fir Wood.

Eupithecia albipunctata : bred ; larvæ from Coombe Wood, London.

E. fraxinata : larvæ rather freely by beating ash in August. Dirkby.

E. tenuiata : bred a good series ; pupæ from Perth.

Odontia dentalis : reared a good series ; cocoons from St. Leonard's-on-Sea.—Geo. T. PORRITT, Huddersfield, 12th November, 1869.

[We imagine that few believe in *Boarmia perfumaria*, as distinct from *rhomboidaria*. The story of its having been bred from a peculiar form of larvæ, feeding upon ivy, has been proved to be utterly mythical. The "very smoky" northern varieties of many species are not generally considered distinct.—EDS.]

Captures of Lepidoptera.—Near Battle.—May 16th, *Ephyra orbicularia*, one on a gas lamp ; 21st, *A. fuliginosa* ; 24th, *T. culiciforme*, on a bush ; 31st, *E. decolorata* and *Eup. plumbeolata*. June 1st to 5th, *C. or* and *P. palpina*, one specimen of each, flying round poplar, *F. piniaria*, round pines, common, *Selenia lunaria*, one on a bush ; 7th, *Lobophora secalata*, one beaten out of sallow ; *Harpella Geoffrella*, in abundance ; 15th to 24th, *Heliodes arbuti*, *Arctia plantaginis*, *Eup. albipunctata*, and *Macaria notata*. July 17th, *Lithosia mesomella* and *Cymatophora duplaris* at dusk ; 26th, *Herminia derivalis*, one by beating, *Aventia flexula*, *P. syringaria*, and *P. bajularia*, one of each, *E. flammealis*, *C. miniata*, and *L. complana*, a few of each, *P. glaucinalis*, one in a window. August 1st, *V. polychloros*, two specimens ; 16th, *A. porphyrea* ; 22nd, *Aplecta advena*. September 6th, *Ennomos tiliaria* and *H. popularis*, on gas lamps. October 8th, *Ennomos fuscantaria* and *Eubolia cervinata*, on lamps.

Near Lewes.—Insects at fallows very scarce ; my best capture was *T. gracilis*. April 10th and 12th, *Lobophora polycommata*, on hedges after dark ; 25th, *E. venosata*, bred from pupa dug ; 31st, *P. vitalbata*, over clematis, *P. tersata*, over clematis. June 11th, *T. extersaria*, at sugar ; 20th, *Crambus chrysonuchellus* ; 22nd, *C. fluviala*, one, flying at dusk ; 24th, *A. aceris*, bred. July 6th, *A. Atropos*, brought to me by a friend, I suppose an hibernated specimen ; 7th, *M. galiata* and *procellata*, and *Eup. venosata*, flying at dusk ; 13th, *M. miniata* and *Endotricha flammealis*, also *Herminia derivalis*, ten specimens, flying about 10 p.m. Two friends also took several at the same time ; 15th, *Crambus falsellus* and *Pyrallis glaucinalis*, over thatch. August 5th, *Lithosia griseola*, by beating ; 10th to 21st, *A. Atropos*, larvæ brought, heard of between 20 and 30 ; 12th, *Botys flavalis* and *G. obscurata*, common ; 16th, *P. stratiotalis* and *P. vitalbata*, on gas lamps ; 23rd, *Hepialus sylvinus*, at dusk. September 6th, *S. convolvuli*, several specimens have occurred in this neighbourhood ; 7th, *E. tiliaria*, on gas lamp ; 8th to 20th, *A. australis*, by searching grass and on sugar, common ; 8th, *L. cespitis*, several specimens ; 21st, *A. saucia*, on sugar. October 1st, *X. aurago*, one, on ivy ; 4th to 14th, *P. empyrea*, on sugar and ivy, several specimens ; 5th to 14th, *A. saucia*, rather commonly ; 4th *H. armigera*, one specimen at rest in the town ; 6th, *C. fluviala*, one, on a gas lamp. November 3rd, *P. cassinea* and *H. pennaria*, on gas lamps.—J. H. A. JENNER, Lewes, November 9th.

Captures of Lepidoptera at St. Ives, &c.—I have taken, during the first season, the following, among other insects:—*Thecla pruni*, *Steropes Paniscus*, *Acherontia Atropos* (commonly), *Gastropacha quercifolia* (commonly), *Epione respertaria* (one ♀), *Ennomos fuscantaria* (one larva), *Eupithecia consignata* (one), *Cerura bifida* (commonly), *Clostera reclusa* (commonly), *Simyra venosa* (larva commonly), *Agrotis saucia* (commonly, but not before observed here), *Cirrhædia xerampelina* (several), *Dicycla oo* (two, at sugar), *Epunda nigra* (commonly), *E. lutulenta* (at sugar), *Calocampa vetusta* (commonly), *Xylina semibrunnea* (seven, at sugar) and *Catocala nupta* (more common than usual). *Chærocampa Celerio* has been sent to me by a friend from Middlesborough, who took it at rest; one other was taken.—W. JAGGER, St. Ives, Herts, December 9th, 1869.

Review.

THE ANIMAL WORLD; a Monthly Advocate of Humanity. Parts 1 and 2. London: S. W. Partridge & Co. Published for the "Royal Society for the Prevention of Cruelty to Animals."

On receiving from the Society two parts of their new publication, with a request that we would notice it, we had, at first, serious misgivings that we should find therein some dreadful agitation against entomologists generally, as opposed to the principles advocated by it, but were much relieved at finding that not only were naturalists not condemned, but even indirectly complimented. And so it should be. Of all men, a true naturalist is the least likely to transgress any of the noble principles so well and ably held up by this—we say it emphatically—the most christian in its objects of all existing societies, whether religious or otherwise. The Magazine is admirably got up, and is published at a price that places it within the reach of the humblest cottager; the illustrations we have seldom seen surpassed for fidelity; and the full-page reproduction of Mr. H. Weir's "Churchyard Mourner" is really excellent.

ENTOMOLOGICAL SOCIETY OF LONDON, 15th November, 1869.—H. W. BATES, Esq., F.Z.S., President, in the Chair.

D. J. French, Esq., of Chatham, and C. S. Websdale, Esq., of Barnstaple, were elected Members; S. G. Barnes, Esq., of Birmingham, N. E. Brown, Esq., of Reigate, E. M. Janson, Esq., of Chontales, Guatemala, O. E. Janson, Esq., of Highgate, W. H. Pearson, Esq., of Birmingham, and W. D. Robinson, Esq., of Dalbeattie, were elected Subscribers.

Mr. F. Smith exhibited, on behalf of Mr. E. Brown, a locust, several specimens of which had been recently taken at Burton-on-Trent (this has since been identified as *Acrydium peregrinum*, Oliv., a native of Asia and North Africa, but not hitherto found in Europe). Mr. Smith also referred to a paper by Mr. Andrew Murray, in the "Annals of Natural History," respecting the habits of *Rhipiphorus*, in which Mr. Murray stated that, according to his opinion, the insect was an inquiline in the wasp's nest, rather than a parasite. Mr. Smith combated this opinion, and exhibited numerous larvæ of *Rhipiphorus*, received from the late Mr.

Stone, some of which had their heads embedded in the wasp-larvæ in the act of sucking the juices.

Mr. Pascoe exhibited numerous new species of Heteromerous *Coleoptera* from Australia. One species of *Sargus* was remarkable, inasmuch as it was always covered, even when living, with a floccous substance, which had been declared to be the immature state of a fungus (*Sphaeria*).

Mr. Briggs exhibited *Deiopeia pulchella*, captured recently by him at Folkestone.

Mr. Davis exhibited numerous preserved larvæ, including a case illustrating the life history of *Cossus ligniperda*.

Mr. Müller stated that *Cynips lignicola* emitted, when handled, a strong and disagreeable odour, and he thought that this might partially account for its rapid spread in this country, the odour possibly rendering it distasteful to birds, &c.

Mr. Dunning made some observations respecting a swarm of *Syrphi* he had noticed at Walton-on-Naze, in Essex, last autumn. Mr. Verrall had examined some of the specimens, and said there were six species.

A discussion then took place respecting the enormous number of *Syrphi* and *Coccinellæ* noticed last season, especially with reference to the supposed migratory powers of these latter. The general opinion of the Meeting was, that there was no necessity to suppose immigration to have taken place, as the larvæ were most extremely abundant a short time before the appearance of the swarms of the perfect insects.

Mr. Bates read a paper on "New genera and species of *Coleoptera*, from Chontales, Nicaragua."

Mr. Baly communicated new genera and species of *Hispidæ*.

Mr. Salvin read a "Synopsis of the Rhopalocerous genus *Clothilda*."

6th December, 1869. H. W. BATES, Esq., President, in the Chair.

M.M. d'Emerich, De Marseul, and Oberthür were elected Foreign Members; Capt. A. M. Lang, of Brockham, near Reigate, W. A. Lewis, Esq., of The Temple, J. C. Melvill, Esq., of Manchester, and Howard Vaughan, Esq., of Chancery Lane, were elected Members.

Professor Westwood exhibited drawings of several very large species of *Chalcididæ*, and of new genera and species of *Pselaphidæ*.

Mr. F. Smith exhibited a larva-case which he supposed to belong to a species of *Oiketicus*, found by Mr. J. K. Lord, in the plains of Sinai, on the sand, where the only vegetation consisted of low plants; also a mass of earth-cells, formed by a species of *Halictus*, near Cairo; these penetrated the sand to the distance of a foot.

Mr. Jenner Weir exhibited *Heliothis armigera*, bred from larvæ feeding in the fruit of the Tomato, in Spain or Portugal.

Mr. Müller exhibited a photograph of an example of *Pterostichus Prevostii*, from Switzerland, with two supernumerary hind-legs.

Mr. McLachlan communicated "Notes on *Boreus hyemalis*, Linné, and *B. Westwoodii*, Hag."

NEW SPECIES, &c., OF *HEMEROBIINA*—SECOND SERIES (*OSMYLUS*).

BY R. M'LACHLAN, F.L.S.

The insects noticed in this series all pertain to *Osmylus*, with one exception, for which I have thought it necessary to institute a new genus. One rather important fact has struck me, when examining these insects, viz., that in most of the species (perhaps all, excepting the European *O. fulvicephalus*) the claws are toothed internally, or bifid.

The following is a concise tabular arrangement of the more closely allied genera:—

A.—*Ocelli desunt*..... POLYSTÆCHOTES, Burm.

A.A.—*Ocelli adsunt*.

a.—*Area costalis serie areolarum unicâ*.

b.—*Tarsorum plantulæ simplices. Area sub-costalis*
venulâ transversâ basali OSMYLUS, Latr.

b.b.—*Tarsorum plantulæ bifidæ vel lunuliformes*.

c.—*Area sub-costalis venulâ transversâ basali*... STENOSMYLUS, McL.

c.c.—*Area sub-costalis venulis transversalibus*
plurimis PORISMUS, McL.

a a.—*Area costalis seriebus plurimis (ad basin 5)*

areolarum HYPOSMYLUS, McL.

The genus *Myiodactylus*, Brauer, is placed in the family *Nymphidæ* on account of its filiform antennæ.

The now described species of the above-named genera are as follows:—

POLYSTÆCHOTES.—*punctatus*, F. (N. America); *vittatus*, Say (N. America).

OSMYLUS.—*fulvicephalus*, Scop. (Europe); *multiguttatus*, McL. (Asia Minor); *conspersus*, Walk. (India); *lineatocollis*, McL. (India); *Langii*, McL. (India); *pubicosta*, Walk. (India); *tuberculatus*, Walk. (India); *interlineatus*, McL. (India?); and *inquinatus*, McL. (Ceram).

STENOSMYLUS.—*tenuis*, Walk. (Tasmania); *stenopterus*, McL. (Australia); *incisus*, McL. (N. Zealand); *pallidus*, McL. (Australia); and (?) *longipennis*, Walk. (Australia).

PORISMUS.—*strigatus*, Burm. (Australia).

HYPOSMYLUS.—*punctipennis*, Walk. (India).

OSMYLUS MULTIGUTTATUS. *n. sp.*

O. niger, nitidus. Pedes flavi; tarsorum articulis 1—4 ad apicem,

ultimoque toto, nigris ; unguibus piceis, intus serratis. Alæ albido-hyalinæ, confertim nigro-guttatæ, venis plerumque pterostigmateque flavo-albidis.

Long. corp. 5—6''' ; exp. alar. 19—20'''.

Hab. Trebizond.

In mus. auctoris, necnon Dom. De Selys.

The whole body, including the antennæ, eyes and ocelli, intensely black, the head much polished, the other parts duller ; abdomen clothed with moderately long cinereous hairs, especially at its apex. Head with the crown very convex, not sulcated in front, the ocelli prominent ; palpi piceous, the terminal joint tipped with black. Legs yellow, moderately pubescent ; the coxæ, four first tarsal joints at the apex, and the last joint entirely, black ; claws blackish piceous, stout, finely serrated internally ; plantule simple.

Wings broad, the apical margin rounded ; whitish-hyaline, thickly covered with large and intensely black spots. In the anterior wings there are about 25—30 more or less rounded spots, some of those on the costa being confluent, and thus forming transversely elongate, cuneiform dashes ; the margins are regularly spotted, the disc with two irregular longitudinal rows, those placed on the two rows of gradate veinlets often united into interrupted transverse streaks ; in the posterior wings the discal spots are less numerous. The margins (especially the costal) and all the veins are strongly ciliated with black. The longitudinal and most of the transverse veins and veinlets in the basal half of the wings are whitish yellow, except where they traverse the spots, when they become black ; most of the gradate veinlets and of the longitudinal apical veins are black (but the first five gradate veinlets in the outer series are white in the middle, even although they be placed in the black spots) ; the sector about 10-branched in the anterior wings : the pterostigmatal region in all the wings is slightly tinged with yellowish.

This beautiful and striking species was collected in 1869, at Trebizond, by M. Th. Deyrolle. In structure it is much like *O. fulvicephalus* (*chrysops*, Auct.), but has shorter and broader wings, with the apical margin slightly rounded, instead of slightly excised ; hence the apex is less produced. The net-work of the wings is rather more open, and the series of gradate veinlets more parallel.

OSMYLUS LINEATOCOLLIS, *n. sp.*

O. albidus. Caput fusco nigroque varium ; antennis, labro, palpisque flavo-albidis. Prothorax albidus ; suprâ lineâ mediâ longitudinali, strigâ utrinque interruptâ, punctisque quatuor nigro-fuscis. Meso- et meta-thorax ad latera anticeque nigro-fusci. Abdomen brunneum, pilis flavis vestitum. Pedes pallidè flavi ; unguibus testaceis, intus ad basin serratis. Alæ albo-hyalinæ, punctis fuscis conspersæ.

Long. corp. 4''' ; exp. alar. 14½—15½'''.

Hab. India septent.

In Mus. Brit.

Whitish. Crown of the head whitish, with a large cordate swelling, in which is an irregular, transverse, blackish groove, and behind this a transverse, polished, brown ridge, dilated in the middle and at each end ; front whitish, varied with

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shining fuscous; labrum and palpi yellowish; antennæ pale yellowish, the basal joint slightly fuscescent above. Prothorax whitish, about one-half longer than broad, slightly narrower in front; above, with three transverse ridges, one in the middle and one at each end; a longitudinal line in the middle, which is dilated on the ridges, an interrupted line on each side, and four dots, all blackish-fuscous; hairs blackish. Meso- and meta-thorax whitish, broadly blackish-fuscous in front, at the sides, and under each anterior wing. Abdomen brownish, the sides of the segments margined with yellowish; terminal segment yellowish. Legs primrose-yellow, with concolorous hairs. Claws testaceous, the apical half simple, the basal half serrated internally, the serrations being nearly hidden in the plantula.

Wings moderately broad, the apical margin slightly rounded, the apex acute; whitish-hyaline, with sparsely scattered brown dots, especially round the apical and inner margins, two or three at the pterostigma and one on the disk being larger than the others; in the posterior wings the basal half is without dots: neuration rather open, varied with whitish and brownish; radius dotted with brown; ciliation for the most part whitish; the gradate series in the anterior wings nearly parallel.

There are three examples in the British Museum, varying slightly in the number of the brown spots in the wings. The species is allied to *conspersus*, Walker, but has fewer dark markings on the wings, and the neuration in *conspersus* is almost entirely blackish, margined with fuscous; the markings on the head and thorax are also differently arranged.

OSMYLUS LANGII, *n. sp.*

O. piceo-niger. Antennæ flavæ, articulis duobus basalibus piceis. Pedes flavi; unguibus intus serratis. Alæ elongatæ, sub-angustatæ, acutæ, vix falcatæ: anticæ flavidæ, punctis plurimis margaritaceis conspersæ; maculis tribus costalibus, nonnullis ad apicem, fasciæque irregulari ante apicem et marginem dorsalem strigas tres emittenti, fuscis; venis venulisque flavis, nigro minutè punctatis: posticæ hyalinæ, venis venulisque plerumque nigris vel nigrescenti-suffusis.

Long. corp. 4—5''; exp. alar. 17—20''.

Hab. India septent.

In Mus. Brit. et auctoris.

Pitchy-black, the head somewhat shining. Palpi piceous. Antennæ yellow, the two basal joints pitchy-black. Eyes very large, black and shining. Ocelli small. Prothorax rather short, the sides parallel; above, with three transverse raised lines, one in the middle, and one at each end (forming raised margins), clothed with sparse blackish hairs. Abdomen blackish above, somewhat ochreous beneath. Legs yellow, with minute blackish points and short yellow pubescence; claws serrated internally.

Wings long, narrow, acute, the apical margin very slightly excised, giving the wings a slightly falcate appearance: anterior wings washed with yellow, shining; with fuscous markings, viz., three large, somewhat quadrate, spots on the costa,

several beyond these near the apex, and a large irregular band extending from near the apex and along the dorsal margin, emitting three broad streaks, one of which enters the apex, and the two others reach the dorsal margin; beyond this band, nearer the base, is a less distinct and somewhat quadrate spot on the dorsal margin, and there are also two small and distinct discal blackish spots, one near the base, the other in the middle; the whole wing is rather thickly sprinkled with pearly drops, being in reality portions of the membrane which have not acquired the yellow ground tint; in the fuscous band these dots are more distinct, and several of them are there much larger, forming large spots; neuration moderately open, the veins and veinlets yellow, with minute black points, from each of which springs a short blackish hair: posterior wings hyaline, all the basal veins and veinlets, and also the gradate veinlets, black and suffused with blackish; the longitudinal veins between, and on each side of, the gradate series, whitish, with blackish points.

There is a specimen of this beautiful species in the British Museum, and I have a long series before me, which I owe to the liberality of Captain Lang, by whom they were collected at Masuri, in June.

OSMYLUS PUBICOSTA, Walker.

Chrysopa pubicosta, Walk., Tr. Ent. Soc. Lond., n. s., vol. v, p. 183.

O. albidus. *Caput thoraxque nigro-signati. Antennæ flavo-albidæ, articulis duobus vel tribus basalibus piceo-nigris. Palpi piceo-annulati. Pedes flavo-albidi, tarsis testaceis, unguibus intus minute serratis. Alæ latæ, ad apicem vix acutæ, albo-hyalinæ: anticæ area costali lata, ad basin fere abrupte dilatata; punctis nonnullis basin versus, duobus pterostigmaticilibus, strigæque transversa irregulari ante apicem, nigro-fuscis; venis venulisque albis, nigro minutè punctatis, cum costâ ciliis longis instructis; posticæ punctis duobus pterostigmaticilibus nigro-fuscis.*

Long. corp. 4—4½''' ; exp. 15—18'''. *Hab. India septentrionali.*

In Mus. Brit. et auctoris.

Whitish, with a pale yellow tinge. Crown of head much inflated, with irregular blackish markings; front with blackish dots, and blackish lines at base of antennal sockets: palpi annulated with piceous: antennæ yellowish white, the two basal joints (and sometimes also the third) pitchy black. Prothorax rather short, slightly broader posteriorly; above, with interrupted longitudinal blackish lines, and clothed with sparse but long yellowish hairs: mesothorax large, much inflated. Legs pale whitish yellow, and clothed with long concolorous hairs; the apex of the tarsi testaceous, claws testaceous, curved, internally at about the middle with two or three small and indistinct teeth.

Wings broad, sub-acute at the apex, whitish-hyaline with whitish veins and veinlets; the costal margin and neuration longly ciliated: anterior wings with the costal area very broad at the base, rather abruptly dilated (almost as in *Ancylopteryx* and *Megalomus*); markings few and blackish, consisting of a spot on each side of the somewhat yellowish pterostigmatic region, the inner of which is the larger,

a short transverse streak placed on the inner series of gradate veinlets, and sundry scattered dots at the base of the wing and on the dorsal margin; veins and veinlets whitish, with small and distinct black points, from each of which springs a blackish hair; most of the veinlets of the inner gradate series, some in the outer, and several at the base of the costal area, black; costal margin with pale ciliation, which is very long near the base; reticulation very open (transverse veinlets few): posterior wings with a black spot upon each side of the pterostigmatal region; neuration without black points; some of the gradate veinlets in both series blackish.

I have re-described this insect, partly because it was erroneously placed by Mr. Walker in *Chrysopa*, and also because I have before me three fine examples taken by Capt. Lang at Masuri in June and July, it having hitherto been unique. It is an anomalous *Osmylus*, and I am not very clear as to the existence of ocelli, which I believe are present, though certainly obscure. The species is best placed in this genus provisionally.

OSMYLUS INTERLINEATUS, n. sp.

O. griseo-brunneus, pilis flavis nigrisque vestitus. Antennæ flavæ. Pedes pallidè flavi, tibiis anticis intermediisque extus nigro-tripunctatis. Alæ modicè elongatæ, acutæ, griseo-hyalinæ; pterostigmate utrinque fusco-notato, punctisque nonnullis fuscis; venis venulisque nigris, albo-variis; sub-costâ, radioque albis, nigro-lineatis: anticæ areâ sub-costali nigro-lineatâ, margine dorsali puncto tuberculato fusco notato.

Long. corp., 5''' ; *exp. alar.*, 17½''' . *Hab. Natalia?* (*India orientali?*).

In Mus. Brit.

Lurid greyish-brown with yellow and blackish hairs intermingled. Antennæ yellow. Eyes grey. Prothorax stout, rather longer than broad. Legs pale yellow; anterior and intermediate tibiæ with three black spots externally, of which one is in the middle, one near the base, and one near the apex.

Wings rather long, the apex acute, the apical margin straight; greyish-hyaline; pterostigmatal region with a blackish spot on each side, a smaller blackish spot placed across two of the nervules of the outer gradate series, and two or three more in the disc on the cubital region; on the inner margin of the anterior wings at about one-third of its length from the base, is a rounded raised (convex) fuscous spot with black veins: neuration for the most part black, but white here and there: sub-costa and radius in the anterior wings whitish, with six pairs of long black spaces, and with black lines in the membrane in the sub-costal area, one line being placed between each pair on the veins; in the posterior wings there are five pairs of black spaces on these veins, and no lines in the sub-costal area: the net-work of the basal portion of the wings is moderately dense; the gradate series not parallel but converging on the inner margin.

There is one example (not in good condition) in the British Museum, indicated as from Port Natal; but, without being able to affirm

that it is so, I am rather inclined to believe that this locality is erroneous, and that the insect is, in reality, Indian. It is allied to *tuberculatus* and *inquinatus* (the next described species), differing from the former in its larger size, broader aspect, and in the lineated sub-costal area; its differences from *inquinatus* are noted in the following comparative diagnosis.

OSMYLUS INQUINATUS, n. sp.

O. interlineato similis; sed alis sine punctis discalibus, anticarum areâ sub-costali, areaque inter sub-costam et radium, fasciis duabus brevibus, transversalibus, puncto inter fascias, strigisque duabus apicem versus, sordide aureis, mox distinguitur.

Long. corp. 4''' ; exp. alar. 19'''.

Hab. Ceram.

In Mus. Brit.

This species, collected in Ceram, by Mr. Wallace, has the form of *interlineatus*, but is apparently abundantly distinct in consequence of the dull golden markings of the anterior wings.

O. tuberculatus, *interlineatus*, and *inquinatus*, are no doubt closely allied; yet I cannot consider them as only forms of one species, and doubt not that more extensive materials will prove their specific value. Possibly also the raised spot of the wings, and somewhat different general appearance, may eventually cause them to be generically separated from the other species of *Osmylus*. The claws in *O. tuberculatus* are distinctly bifid at the apex, and the same character doubtless obtains in the two others; but the single specimens of each of these are not in a condition for minute examination.

HYPOSMYLUS, nov. gen.

Caput parvum: antennæ breves; ocelli supra et inter antennarum bases positi; labrum paullo emarginatum; palporum maxillarum articuli duo basales breves, cæteri longiores, inter se æquales, ultimo acuto. Prothorax latitudine paullo longior. Pedes pilosi, unguibus crassis, valde curvatis, plantulis simplicibus. Alæ amplæ: anticarum areâ costali latâ; venulæ costales furcatæ, venulis obliquis plurimis, series areolarum plurimas formantibus, connectæ; sub-costâ et radio ad apicem confluentibus; area sub-costalis venulâ unâ ad basin solum instructa; sectore et radio parallelis; areolis discalibus per-numerosis; venulis marginalibus furcatis; areâ post-costali multi-areolatâ: posticæ fere ut in anticis, sed area costalis angustata, serie areolarum unicâ.

This genus is formed for the reception of *Osmylus punctipennis*, Walker, and differs especially from *Osmylus* (as here restricted) in the costal veinlets being united so as to form several irregular rows of small cellules.

HYPOSMYLUS PUNCTIPENNIS, Walker.

Osmylus punctipennis, Walk., Tr. Ent. Soc. Lond., n. s., vol. v, p. 183.

H. brunneus. *Caput testaceum, super antennis flavum. Antennæ brunneæ. Pedes flavo-brunnei, flavo-ciliati; tarsis obscurioribus. Alæ testaceo-hyalinæ, venustè micantes: anticæ punctis nonnullis ante apicem fuscis; sub-costâ et radio flavis, reliquis venarum venularumque flavis, fusco-variis; spatio pterostigmatali flavido, obsoletè fusco-notato.*

Long. corp. 6''' ; exp. alar. 24—28'''. *Hab.: India septentrionali.*

In Mus. Brit. et auctoris.

Pale brown. Head testaceous; crown much inflated, but with an abrupt declivity above the antennæ which is occupied by a yellow transverse space, in which are situated the ocelli, which are very small, and placed closely together in a triangle; the posterior portion of the head, partly below the eyes, shows two large oval tubercles, one on each side. Antennæ and palpi pale brownish.

Eyes somewhat plumbeous. Thorax above with sparse, but long, testaceous hairs. Abdomen fuscous (colours probably altered), clothed with testaceous hairs; the last segment entirely testaceous and provided with two large oblique approximating valves (♂?). Legs yellowish, with yellow hairs; the tarsi somewhat darker; the claws shining brown.

Wings long and broad, acute at the apex; hyaline with a testaceous tinge, and with beautiful blue, purple, and golden reflections; the pterostigmatal region yellowish with indications of fuscous dots; sub-costa and radius yellow; most of the other veins whitish, but many of the transverse veinlets fuscous; the margins and veins longly ciliated with yellowish hairs: in the anterior wings are several fuscous dots on the outer series of gradate veinlets, and a smoky corneous dot in one of the discal cellules near the middle; the cellules in the costal area irregular; the discal cellules very numerous, but leaving a very broad marginal space.

Of this large insect I have seen but two examples—Walker's type, and the one given to me by Captain Lang, by whom it was captured at Kunawur.

20, Limes Grove North, Lewisham, S.E.,
December, 1869.

HINTS ON PRESERVING LARVÆ.

BY H. PRYER.

Some two years ago, seeing some preserved larvæ in the possession of Mr. Bond, I became desirous to know the method by which they were prepared; and, after a good many experiments, I attained success. Believing that there are many others who would like to be informed of the *modus operandi*, I have pleasure in giving them the result of my experience, as follows.

Having procured a larva, immerse it in a solution of alum or pyro-

ligneous acid for a short time ; then gently squeeze the inside out, upon or between pieces of blotting paper, taking care not to tear or enlarge the anal orifice. After having extracted all the moisture and intestines, insert in the aperture a bent glass blow-pipe, having a bulb in the middle, and inflate the larva over a spirit lamp, having a flat piece of zinc fixed over the flame. Holding the tube so that the larva does not touch the zinc plate, blow gently, until it is quite dry and hard. This requires great care, as it is liable to scorch ; and, if the skin be only partially dry, it will, although apparently finished, become indented or depressed in those places where it is not thoroughly hardened. To ascertain if the operation be complete, cease blowing, and draw in the breath gently ; when, if the larva is not dry, it will shrivel up, and must be inflated again immediately ; if, on the other hand, it is dry, it will remain distended to its natural size and appearance. To prevent the head from being extended too much, dry all the body except the first and second segments, take the larva away from the spirit lamp, and press the head into its natural position, afterwards drying it at some distance from the flame, without blowing through the tube. If the larva require colouring (as almost all green larvæ do) some very finely powdered dry colour (rather darker than the original colour of the larva) must be introduced into the skin after it is thoroughly dry. To get the colour evenly on the inside of the skin, it must be rolled about in the hand. In order to direct the heat on to any particular place, a small hole (about the size of the head of a pin) should be made in the centre of the piece of zinc. This will be found to be particularly useful, when finishing the head of the larva, as above described. The object of having the glass tube bent is, that the head is then above the level of the flame ; and the bulb is to prevent any moisture from the mouth running down the tube into the inside of the larva. I generally put a piece of blotting paper in the mouth-piece of the tube.

The inflation while the larva is over the lamp must be kept up without intermission. This is very easy after a little practice, and does not cause any exertion, as the breathing is carried on through the nose. A larva should be kept without food for a day before being killed, as it is almost impossible to extract the food that it has just eaten ; and, after the larva is dried, this shows in an ugly black patch just behind the head. Very frequently it occurs, that, while blowing, the larva will slip off the tube ; this can be prevented by tying a thin piece of cotton round the end of the tube and the last pair of claspers. It is, however, as well, if possible, to dispense with tying the larva on the tube, as it very often distorts the shape of the last segments. The best larva for a first ex-

periment is one that has no bright colours and is not hairy; such as *Noctua xanthographa*. The reason for putting the larva in pyroligneous acid or a solution of alum is to harden the skin, so that it may not be inflated too much; and, if hairy, to prevent the hairs from falling out whilst being handled. When preserving a brightly-coloured and hairy larva, such as *Bombyx neustria*, I generally starve it until it is nearly dried up, and then kill it and take the inside out. In conclusion, I would remark that some amount of patience is requisite to ensure success. Any further particulars or explanations that may be required I shall be most happy, if possible, to afford.

16, Mark Lane, E.C.: November, 1869.

NOTES ON THE BRITISH SPECIES OF *CHILOSIA*.

BY G. H. VERRALL.

It is my intention, in any notes on the *Syrphidæ* I may publish, to take up a single genus or group of genera and work through the species; and I commence with *Chilosia*, as that is one of the largest and most obscure genera.

The most tangible characters for separating it from its allies, *Syrphus*, *Melanostoma*, &c., lie in the unicolorous brown, blackish, or bluish colour and pitted front; superficially some species of *Pipiza* or *Chrysogaster* resemble others in this genus, but the first is distinguished by its hairy perpendicular epistoma, without any knob or prominence, and the second by its unequal sub-apical and discal cells, and by the transversely ribbed front of the female; also, the third joint of the antennæ of *Chilosia* is always round or rounded-oval.

Mr. Walker has included in this genus *Leucozona lucorum*, L., now separated by its pale epistoma and markings about the base of the abdomen, which is more arched.

In Schiner's catalogue of European *Diptera*, published in 1864, there are 93 species enumerated, to which about a dozen have since been added; these probably represent about 70 distinct species, as, in consequence of the insufficient descriptions of many of the earlier authors, the synonymy has always been in a most tangled state. The best descriptions are those of Loew and Egger, in the "Verhandlungen der zool. bot. Verein." for 1857 and 1860, and I have adopted the three groups proposed by Loew, the first of which is distinguished by the presence of distinct hairs on the disc of the epistoma, which must not be confounded with the hairs on the eye-margins, nor with the often abundant tomentum; these hairs are scarcely distinguishable to the

naked eye, but may be easily seen with a lens in a good light; the species in this group always have hairy eyes: the second group has the disc of the epistoma without any hairs, and the eyes (at least in the male) distinctly hairy; the females in a few species (*albitarsis*, *flavimana*, and *mutabilis*) have the eyes quite bare, but I think all the bare-eyed females have the legs black, with the middle joints of the front tarsi pale: the third group has the epistoma without any hairs on the disc, and the eyes bare in both sexes.

Group I.—*Epistoma with distinct hairs on the disc; eyes hairy.*

1. *Æstracea*, L. This species may be at once known by its robust shape and shaggy whitish pubescence, with a band of black hairs across the thorax, and on the third segment of the abdomen; the apical segment is clothed with tawny hairs, thus giving the insect the appearance of a *Criorhina*. I believe it is tolerably common, though I have only met with it near Dorking, in June, 1868.
2. *intonsa*, Lw., may be distinguished from any other British species of this group by its soft brown pubescence, without the least intermixture of black hairs round the edge of the scutellum and thorax; I expect it is rare, as I have only seen a pair in Mr. Unwin's collection, probably caught in Sussex, and a male in the Entomological Club collection. Our species *may* be *griseiventris*, Lw., as the belly is dull.
3. *pigra*, Lw. The characters of this species lie in the dark brown antennæ, with an only slightly pubescent arista, the brownish alulæ of the male, and the peculiar whitish pubescence on the abdomen of the female, forming slight fasciæ. In the Entomological Club collection are one male and three females, and I possess one male captured by Mr. Smith in North Devon last year.
4. *barbata*, Lw., is distinguished by its distinctly pubescent arista and rather pale legs, the pubescence on the thorax is more reddish than usual, and the hairs on the disc of the epistoma more abundant. I captured one female of this near Box Hill, in the summer of 1867.
5. *variabilis*, Pz. This is the commonest of the genus, and may be known by its entirely black legs, elongate abdomen, and bluish-black colour. It is a large species, and occurs abundantly in woods and about hedges in June.

Group II.—*Epistoma without any hairs on the disc; eyes (of the male) hairy.*

6. *impressa*, Lw., is separated from the allied species by its entirely

black legs and yellowish base of the wings. There is a female in the Entomological Club collection.

7. *albitarsis*, Mg. This, and the following, are considered the same by continental authors, but I agree with Zetterstedt in thinking that *albitarsis* is well distinguished by its more bluish colour, more pellucid wings, smaller size, less pubescence, &c.; the species are remarkable for their black legs, with the middle joints of the front tarsi yellow, and are distinguished by the almost bare arista from *mutabilis*. There are about four pairs of *albitarsis* in the Entomological Club collection.
8. *flavimana*, Mg., is much commoner than the last, occurring in tolerable abundance about June, mostly in marshy places.
9. *mutabilis*, Fln. There is one male in the Entomological Club collection; this I refer with considerable doubt to this species, which is distinguished by its black legs, with the middle joints of the front tarsi yellowish, and by its rather small size and pubescent arista. The species should be common in England.
10. *flavicornis*, F. This is the first of a group of large, thickly pubescent species, which have no strong black hairs round the edge of the scutellum; it is distinguished from the others by the entirely yellow legs of the female, and by the yellowish antennæ in both sexes; the male is smaller than *grossa*, with less pubescence, and entirely yellow tibiæ; there are two males and three females in the Entomological Club collection, and Mr. Smith has given me a female captured by him in North Devon.
11. *chrysocoma*, Mg., is known by its entirely yellowish pubescence, without the least intermixture of black hairs; the tibiæ have a dark ring round the middle. I possess a male, purchased at Mr. Stevens' rooms in 1868.
12. *grossa*, Fln., is distinguished by its large size, very thick pubescence, dark antennæ, and black pubescence about the tip of the abdomen; this black pubescence is very much less in the male than in the female. The species is not rare in woods in March.
13. *chloris*, Mg. This is the last of the thickly pubescent species, and generally has a few black hairs round the edge of the scutellum, it has much less pubescence than the others, and is distinguished by black hairs on the front, thorax, &c., and by the luteous antennæ, and a blackish spot about the middle of the tibiæ in the male. I believe it is not rare on *Caltha palustris* in April.

14. *decidua*, Egger, is distinguished from the rest of this group by its broad, flat epistomal knob, yellowish antennæ, and whitish fascia-like pubescence on the abdomen in the female, like *pigra*, to which it is much allied; there is one female in the Entomological Club collection.
 15. *vernalis*, Fln. I am not sure whether I am right in the determination of this species, and cannot at all make up my mind as to its limits, as it varies exceedingly in the colour of its pubescence and tibiæ, the shape of the abdomen, &c.; the species, or group of species, is distinguished from the others by its smaller size, short shining epistoma, dark antennæ with almost bare arista, black legs with the tibiæ ranging from almost black to broadly yellow at both ends, and the thickened hind metatarsus. It is common in meadows and banks of rivers from May to July.
 16. *præcox*, Ztt., is the smallest species I have seen, and may further be known by its narrow abdomen, bare arista, and yellow legs, with the femora at the base broadly, and the last joint of the tarsi blackish; there is a pair in Mr. Unwin's collection, and a female in that of the Entomological Club.
- Group III.—*Epistoma* without any hairs on the disc; eyes bare.
17. *pulchripes*, Lw. This is very much like the last species, but is much larger, and has the eyes quite bare; it is readily known by its pale legs, with the tarsi principally pale, the antennæ are reddish-yellow, very large in the female, and the arista is almost bare. I believe it is not rare, as I have caught it near Lewes and Richmond.
 18. *scutellata*, Fln., may be distinguished from any other species by its very large swollen epistomal knob; its legs are principally pale, and its antennæ brown. It is the commonest species after *variabilis*, occurring on *Umbelliferae* in June.
 19. *soror*, Ztt., resembles the last, and, like it, has the tip of the scutellum yellowish in the female; it differs in the bright orange-red antennæ and smaller epistomal knob. There is one female in the Entomological Club collection.
 20. *pubera*, Ztt. This, and the following species, have the legs quite black, and, all but the last, have the antennæ blackish; *pubera* is distinguished by its bright reddish pubescence ("*pube subaurea*," Rond.), distinctly though shortly pubescent arista, and yellowish-hyaline wings. I possess a female captured in the Plashett Wood, near Lewes.

21. *sparsa*, Lw., is remarkable for its very slight punctuation ; the pubescence is nearly all black : there is a pair in the Entomological Club collection.
22. *antiqua*, Mg., resembles the last, but is much more punctate, and the short pubescence of the thorax is generally pale ; the wings of this and the last are of a blackish-hyaline hue ; it should be common in England, but I have only seen two males in Mr. Unwin's collection, and two females in that of the Entomological Club.
23. *maculata*, Fln., is remarkable for its bright orange antennæ and large grey spots on the abdomen ; the epistoma is also very much produced like a snout : there is a pair in the Entomological Club collection.

In addition to these twenty-three species, I have seen (1) a male captured in the New Forest rather like *flavimana*, but with the legs black and the knees only brownish ; (2) a female in Mr. Unwin's collection, probably allied to *pictipennis*, Egger, but smaller, and coming near *chloris*, with no black hairs round the edge of the scutellum, and the wings suffused with brown about the lower transverse veinlet and near the tip ; (3) a female in the Entomological Club collection allied to *decidua*, but rather smaller, with no pale fascia-like markings on the abdomen, darker tibiæ, shorter and barer arista, and yellower pubescence. There are upwards of a dozen species known on the continent very likely to occur in Britain ; and I expect our lists to reach about forty species when Scotland has been more worked. It will be seen that most of the species, so far as is yet known, are rare ; and one could hardly expect to catch above six or eight in a year's collecting ; but I believe that individuals will prove tolerably abundant near the spot where any species is found to occur.

The Mulberries, Denmark Hill, London, S.E.

January 10th, 1870.

DESCRIPTION OF A NEW SPECIES OF THE COLEOPTEROUS FAMILY *DORCIDÆ*.

BY CHAS. O. WATERHOUSE.

As the insect which I am about to describe belongs to the genus *Macrodorcas* (Motschulsky), concerning which scarcely anything appears to be known, I may here note that I have determined (as it would appear, simultaneously with Major Parry) that *Macrodorcas rectus* (Motsch.) is identical with *Eurytrachelus niponensis* (Vollenh.). With

the other three species of *Macrodorcas* I am at present unacquainted; but in the British Museum collection there is a small variety of *M. niponensis*, having simple mandibles, which so nearly agrees with *M. rugipennis* (Mots.) as to make it probable that that species is only a variety of *M. rectus*, described immediately before it.

MACRODORCAS OPACUS, sp. nov.

♂, *M. parallelus*, *depressus*, *opacus*, *nigro-fuscus*; *capite transverso, deplanato, supra subtilissimè granuloso, pone oculos punctis interspersis, anticè ferè recto-truncato, angulis anticis obliquè truncatis, lateribus parallelis; mandibulis tenuibus, sub-arcuatis, medio intus dente obtuso armatis; thorace capite latiore, transverso, supra subtilissime granuloso, punctis parvis interspersis, suturâ læviore parcè punctatâ; scutello basi opaco, punctato; elytris elongatis, parallelis, apice retundatis, opacis, sat crebrè at leniter punctulatis, suturâ sub elevatâ, nitidâ, parcè punctulatâ; tibiis anticis 5-denticulatis, mediis uni-spinosis, posticis inarmatis; tarsis ciliatis; mesosterno parcè flavo-pubescenti, suturâ nitidâ, leniter canaliculatâ, lateribus reticulato-punctatis; abdomine sat crebrè punctulato, suturâ læviore.*

Long. corp. (mand. excl.) $9\frac{1}{2}$ lin. (20 mill.)

Long. mandib. 2 lin. (4 mill.).

Habitat, N. Japan (Hakodadi).

In Mus. Brit.

This species resembles a very small *Macrodorcas niponensis*; but the head is not contracted behind, so that the sides are almost parallel. The thorax is proportionately less broad. The elytra are almost of an equal breadth, from the base to the posterior two-thirds, and are then evenly rounded; whilst in *niponensis* the elytra are slightly narrowed at the base, broadest in the middle, and then gradually contracted to the apex; the humeral angles are slightly produced; in *niponensis* the elytra are thickly and finely rugulose-punctate, the interstices being shining; in *opacus* the elytra are dull, being somewhat thickly and delicately punctured. The abdomen is distinctly punctured, somewhat thickly so towards the margins, where it is dull; whilst in *niponensis* it is sparingly punctured, the sutural portions of the second, third and fourth segments being scarcely punctured at all. The meso-sternum is longitudinally concave. The metasternum in *opacus* is gently but distinctly canaliculate, especially posteriorly.

The female is at present unknown.

Notes on M. Pandellé's Monograph of the European Tachyporidae.—M. Louis Pandellé having recently (Ann. de la Soc. Ent. de Fr., 4^{me} série, T. 9^{me}, 1869, p. 261 et seq.) published his "Étude monographique sur les Staphylins Européens de la tribu des *Tachyporini*, Erichson," I propose briefly to notice that work, and especially to draw attention to such parts of it as are likely to interest British coleopterists.

M. Pandellé, thinking Erichson incorrect in his chief character for this family (viz., the insertion of the antennæ at the base of the forehead, beneath a lateral rim, above the mandibles and below the eyes), rejects from it *Trichophya* (for which he suggests, however, no other location) and (following Kraatz) *Tanygnathus*. He purposely omits reference to the parts of the mouth, relying upon more accessible external modifications; prominent among which are the number and position of the setiferous punctures, and the proportionate length of the coxal interval of the metasternum (i.e., the space between the rims of the cavities of the intermediate and posterior coxæ).

With regard to the Stephensian species, he remarks as follows—"Thanks to "Mr. Crotch, of Cambridge, who has generously communicated to me the extensive "researches which he has made upon the species of Stephens, I have also been able "to give the synonymy of that author; but it is easy to perceive with certainty "that Stephens has described varieties rather than species; and, when even a species "is recognisable in his description, I cannot resolve to give his name priority over "those of Erichson and Kraatz, because I find it a great inconvenience to substitute "for a name adopted by everybody, one that has been abandoned (*délaissé*) and of "which the legitimacy is nearly always open to contest." Without seeing the necessity for troubling anew any British coleopterist for information which has been since 1858 before the public in Mr. Waterhouse's catalogue, wherein are (with very many more) the few Stephensian synonyms given by M. Pandellé, I would simply remark, that, where Stephens' species are good, as it is here admitted some are, their validity will not be affected by M. Pandellé's convenience or otherwise; also, that, where good, they have not been abandoned by us; and that the other names have not been adopted by "everybody,"—unless two generations of British naturalists are to be considered as not included in that comprehensive term.

Abandoning, as above intimated, the Erichsonian characters, M. Pandellé proceeds to enumerate his own: these are very ingenious, but are too long for transcription, and not very capable of condensation; the result of them being that the family, as restricted by him, may be distinguished from the *Oxytelini*, *Omalini* (apart from the absence of ocelli), *Piestini*, and *Proteini* by the head being smooth, neck-less, and without impression or elevation at the base of the antennæ, and by the thorax being more extensively contracted in front than at the base; and from the other *Staphylinidae* by the deflexed side-pieces of the elytra being wide and defined on their upper sides by a sharp and well marked ridge.

His genera are as follows:—*Hypocyptus*, *Conurus* (M. Pandellé finds no inconvenience in adopting this Stephensian genus in preference to the continentally-used *Conosoma* of Kraatz, who proposed that modification of it on account of there being a prior genus *Conurus* in birds), *Tachyporus* (of which he makes two sub-genera, *Lamprinus* and *Tachyporus* proper), *Habrocercus*, *Cilea*, Duv. (including the subsequent *Leucoparyphus* and *Coprophorus* of Kraatz), *Tachinus* and *Boletobius* (afterwards referred to as *Bolitobius*). The latter genus is made to include the

following sub-genera : *Megacronus*, Steph., *Mycetoporus* (these two absorb *Bryoporus*, not even considered a sub-genus) and *Bolitobius*. Very long characters are given for these genera, in treating of which, as also of the species, the continental scheme of sub-division, reference, and tabulation is carried to a most perplexing extent,—the whole monograph being a table, and no one item complete in itself.

The species of the several genera are as follows.

HYPOCYPTUS :—*grandicornis*, Fairm.; *unicolor*, Rosenh.; *longicornis*, Payk.; *rufipes*, Kraatz; *rubripennis*, n. s. (described from a single ♀, France); *leviusculus*, Mann.; *lancifer*, n. s.; *nigripes*, Stephens; *seminulum*, Erichs.; *apicalis*, Brisout, Gren., Cat. et Mat., (attributed to England expressly); *discoideus*, Er. *H. tenuicornis*, Ktz., and *pictus*, Mots., are added as not having been seen by M. Pandellé; who, however, has had all the other types of Dr. Kraatz's described species of the *Tachyporidæ* sent to him by that author.

Of these, *H. rufipes*, Ktz., is apparently possibly only a badly developed specimen of *longicornis*, to which insect it was attributed with a similar expression of doubt in Wat. Cat. M. Pandellé notes the prior *H. rufipes* of Stephens, but is wrong in thinking that insect belongs apparently to another genus. It is simply *H. longicornis*, and is even acknowledged by Stephens himself to be so, in the "Manual," p. 376. *H. pulicarius* is suppressed as a species; the only mention of it being that Dr. Kraatz has communicated a large example of *seminulum* under that name. *Erichson's pulicarius* is not referred to. The *nigripes* of Stephens is identified from the description with the *pygmæus* of Kraatz: but Stephens' insect is *longicornis*. In the "Manual," he refers his *nigripes* to *leviusculus*, Mann., and states the hinder angles of the thorax to be "very straight,"—a definition which does not agree with the characters of *pygmæus*. The *anisotomoides* (Steph.) of Wat. Cat. is not mentioned. In Wat. Cat. it is identified, with a query, with *leviusculus*, Ktz. (these two names are inverted in Mr. Crotch's Cat.); it cannot, however, from size and coloration be attributed to M. Pandellé's species of that name; nor does Mr. Waterhouse's type agree with Stephens' description, which states the legs and antennæ to be red. It agrees however, specifically, with Stephens' type, which is very immature, and appears to differ from the insect known here as *pygmæus*, Ktz., solely in the more slender joints of its antennæ.

CONURUS :—*pedicularius*, Grav.; *Lethierryi*, n. s.; *lividus*, Er.; *littoreus*, Linn.; *pubescens*, Er.; *fuscus*, Er.; *binotatus*, Gr.; *Wankowiezi*, n. s.; *bipustulatus*, Er.; *bipunctatus*, Er. Of *C. fuscus*, M. Pandellé remarks that it seems well to be recognised in the *immaculatus* of Stephens' Illust., v, 1832. As Erichson's insect was described in 1839, I suppose this must be considered as one of the "inconvenient" species. Mr. Crotch, in his catalogue, gives precedence to the Stephensian name.

TACHYPORUS :—(Sub-genus *Lamprinus*) *erythropterus*, Panz.; *saginatus*, Gr. (early spring, ant's-nests); *hæmatopterus*, Ktz.; *pictus*, Fairm.; (Sub-genus *Tachyporus*) *brunneus*, Fab.; *pusillus*, Grav.; *tersus*, Er.; *transversalis*, Grav.; *hypnorum*, Fab.; *scitulus*, Er.; *humerosus*, Er.; *quadriscopulatus*, n. s.; *ruficollis* Gr.; *Erichsonis*, n. s.; *ruficeps*, Ktz.; *chrysomelinus*, Linn.; *solutus*, Er.; *discus*, Reiche et Sauley (*solutus* var?); *obtusus*, Linn.; and *formosus*, Matthews (*à la mode Française*, "Mathews"). The unseen species are *nigricornis*, Gyll., *nigriceps* and *crassicornis*, Mann., *flavipes*, Mäkl., *obscurellus*, Zett., and *caspius*, Mots.

Of these, *brunneus* is recognised as comprising several forms; the darkest colored one being *T. elegantulus*, Reiche et Sauley. The dark form of *pusillus* is apparently equivalent to the Syrian *T. Abner* of Sauley. *Tersus* is said often to be represented by small specimens of *chrysomelinus* (!). *Scitulus* is stated, on Mr. Crotch's authority, to be the *macropterus* of Stephens. The two species are collocated in Wat. Cat. synonymy: and I have examined the Stephensian types, which are, as is the *scitulus* of Wat. Cat., a dark form of *pusillus*. *T. abdominalis*, which has appeared in our later catalogues with and without a query, is disposed of nominally, being represented by *T. Erichsonis*. M. Pandellé suppresses the former name, as there is no work or collection wherein it is not applied to different species: e. g., *abdominalis*, Grav., = pale *brunneus*; of Kraatz, = pale *ruficollis*; of Erichson, = pale *obtusus* and *Erichsonis*, Pandellé; and of Mann., = pale *obtusus*. All so-called *abdominalis* in Britain that I have seen are pale *solutus* or *obtusus*. *Erichsonis* (l. c., 305) is described as rare, found at Berlin and in Austria. *Nitidicollis* (*obtusus* var.) does not occur in England, but in Ireland and Scotland, as far as my experience goes.

HABROCERUS:—*capillaricornis*, Grav. A second species, from Chili (*marginicollis*, Solier) is noted, wherein the antennæ are not pilose.

CILEA:—*colchica*, Ktz.; *silphoides*, Linn.

TACHINUS:—*nitidus*, Fauvel; *flavipes*, Fab.; *latiusculus*, Kies.; *proximus*, Ktz.; *humeralis*, Grav.; *rufipennis*, Gyll.; *marginatus*, Gyll.; *Fauveli*, n. s.; *bipustulatus*, Fab.; *pallipes*, Grav. (*frigidus*, Ktz.); *palliolatus*, Ktz.; *rufipes*, De Geer; *laticollis*, Er.; *flavo-limbatus*, n. s.; *marginellus*, Fab.; *collaris*, Grav.; *subterraneus*, Linn.; *fimetarius*, Grav.; *Bonvouloiri*, n. s.; *discoideus*, Er.; *elongatus*, Gyll. Unseen species; *nigerrimus*, Solsky, and *nivalis*, Mots.

The only remark in this genus calling for observation is that at p. 323, where M. Pandellé says that *T. palliolatus* seems to be the same as Stephens' *scapularis*; but that the size given, which is that of his largest *Tachini*, leads to the belief that *proximus* (not described till 23 years later, and only just found on the Scotch mountains) or an obscure variety of *humeralis* were in Stephens' view when describing it. M. Pandellé is, however, not accurate in his statement as to the size, or correct in his inference. Stephens' largest *Tachini* are *aterrimus* and *elongatus*, which he states to be respectively 4 and $4\frac{1}{2}$ lines long. He gives 3 lines for *scapularis*, and 3 to $3\frac{1}{4}$ for *cinctus*, Marsham (*humeralis*). Kraatz gives 3 lines also for his *palliolatus*, and 3 to $3\frac{1}{2}$ for *humeralis*. If *proximus* had then been known, Stephens' size would have been right, as Kraatz gives 3 lines for that species. And the insects named *scapularis* in Stephens' collection are the same as *palliolatus*.

BOLITOBIUS:—(Sub-genus *Megacronus*) *formosus*, Grav.; *Barnevillei*, n. s.; *Aubei*, n. s.; *inclinans*, Grav.; *Cedronis*, de Sauley; *cingulatus*, Mann.; *analisis*, Payk.; *cernuus*, Grav. (*Bryoporus*, Ktz.); (Sub-genus, *Mycetoporus*) *elegans*, Mäkl.; *splendidus*, Grav. (*non frequens*!); *nanus*, Er., nec Grav.; *tenuis*, Muls.; *debilis*, Mäkl.; *pronus*, Er.; *splendens*, Marsh.; *Reichei*, n. s.; *Chevolati*, n. s.; *Reyi*, Pandellé (*angularis*, Muls. et Rey, nec Payk., Steph., Sachse); *Fairmairei*, Pandellé (*niger*, Fairm., nec Grav.); *lucidus*, Er.; *Brucki*, n. s.; *Märkeli*, Ktz.; *marginatus*, Ktz.; *punctus*, Gyll.; *longulus*, Mann.; *lepidus*, Grav.; *bimaculatus*, Boisd. et Lac.; *poricollis*, n. s.; *pachyraphis*, n. s.; *rufus*, Er. (*Bryoporus*); *rufipennis*, n. s. (*Bryop.*);

castaneus, Hardy and Bold (*Bryop.*); (Sub-genus *Bolitobius*) *striatus*, Ol.; *bicolor*, Grav.; *Kraatzii*, n. s.; *intrusus*, Hampe; *pygmæus*, Fab.; *trinotatus*, Er.; *exoletus*, Er.; *lunulatus*, Linn.; *speciosus*, Er.; *atricapillus*, Fab. Unseen species; *punctulatus* and *semirufus*, Heer, *crassicornis*, *ruficollis*, and *bicolor*, Mäkl., *humeralis* and *prostratus*, Mots., *trimaculatus*, Fab., *laponicus*, *punctipennis* and *piceus*, Thoms.

Mäklin's name is dropped as the founder of *longicornis*, his description offering no points of separation from *splendidus*. Mr. Crotch (who in his catalogue gives the Stephensian name precedence) is quoted as identifying with *pronus* the prior *clavicornis* of Stephens, "*dont la description lui convient en effet*" (p. 343). Nevertheless, M. Pandellé calmly ignores the evidence which he himself publishes. *Bimaculatus* is the prior *brunneus*, Marsham and Stephens, = *ruficornis*, Ktz., *punctiventris*, Thomson (persistently mis-printed "Thompson"). M. Pandellé, whilst giving *longulus*, *bimaculatus*, and *lepidus* as species, states that he is led to believe there is only one specific type of them. Having examined very many examples, I have never had any difficulty in separating these insects satisfactorily.

Rugipennis (p. 352) appears to be a new species, stated to be often confounded with *rufus*, from which it differs solely in having its eyes convex, the large middle front punctures of the thorax distant from the margin in the proportions of 16—20 instead of 9—10 (as in *rufus*), the outer punctures approaching the margin "*via*" instead of "*evidenter*," and the longitudinal striolæ of the elytra more defined. To a dark variety of this species must be referred the insect brought forward by myself as most probably *rufus*, var., from Grayvel, Rannoch. *Rugipennis* is also stated to occur in the Pyrenees and at St. Gothard. It will be noticed that *Bryoporus cernuus* is transferred to the *Megacronus* sub-genus, next to *analis*, and far removed from its quondam ally *rufus*, which will now, of course, have to be expunged from our lists. *Castaneus* also occurs in the Pyrenees: M. Pandellé does not adopt *Hardyi*, Crotch, as Stephens' prior *castaneus* does not stand specifically. He repeats Stephens' erroneous statement, that *lunulatus* occurs here, being more common than *atricapillus*. *B. intrusus* is like highly colored *pygmæus*, with the metasternum tri-tuberculate, the tubercles being approximated, but separated by a common impression.—E. C. RYE, 10, Lower Park Fields, Putney, S.W., January, 1870.

Occurrence in Aberdeenshire of Amara Quenseli, Schön.; a species new to the British list of Coleoptera.—In June last, I took a trip up the valley of the Dee, in Aberdeenshire, for the purpose of acquainting myself with the *Coleoptera* of that district. Among other things less noteworthy, I captured two or three specimens of an *Amara* which at the time I hoped would prove an addition to our list; and I am now assured, through the kindness of Mr. Crotch, and on the authority of M. Putzeys, who is working at the genus, that they are to be referred to *A. Quenseli*, Schön., Syn. Ins., i, 190; Schaum, Ins. Deuts., i, 542.

This species belongs to the sub-genus *Celia*; and, compared with *rufocincta* and *bifrons*, is broader, more ovate and depressed, with the elytral striæ faint and not deepened towards the apex. The colour above is brassy: but the elytra are sometimes non-metallic and dull ferruginous, while the thorax is greenish. Length $3\frac{1}{4}$ —4 lines. My specimens were found at a height of between 2000 and 3000 feet, on the mountains of Braemar. The insect is said to be not uncommon in Lapland, the Alps, and the range of the Caucasus.

Upon Deeside a single broken specimen of *Magdalinus duplicatus* occurred, under the same circumstances as in Morayshire,—ROBT. HISLOP, Blair Bank, Falkirk, January, 1870.

Occurrence of Dyschirius angustatus, Ahr. (*jejunus*, Daws.), on the south coast.—I was fortunate enough, in October last, to take four specimens of this rare beetle (hitherto resting in our lists on the authority of the two specimens taken by Mr. Bold in Northumberland, and upon which Mr. Dawson's species was founded), by washing sand, along the border of a fresh-water ditch near the ferry, at Hayling Island. The insect can only be compared (of our British species) with a small *extensus*, Putz. (*elongatulus*, Daws.): but is readily distinguishable, as has been already pointed out, by the evident wrinkling on the head (apart from the usual grooves), and by the armature of the anterior tibiæ; the inner and outer apical spines of which are stout, and of equal length, the toothlets on the external margin, above the outer apical spine, being, moreover (and most especially the lower of the two), very well marked. Mr. Rye has compared my specimens with the examples above alluded to as belonging to Mr. Bold, who most kindly entrusted them to the tender mercies of the post for that purpose.—H. MONCREAFF, 9, Wish Street, Southsea, Hants, January, 1870.

Note on Bembidium anglicanum, Sharp.—This species is an old friend of mine, whose acquaintance I made many years ago on the sandy flats by the Irthing, near Lanercost, Cumberland, where it was in great profusion, in company with *B. femoratum*, amongst the stones, and generally at some distance from the river. It occurs also on the "Devil's Water," and other of our upland streams. Noticing its red legs and green colour, I sent specimens to Mons. Jacquelin Duval, when he was preparing for publication his paper "*De Bembidiis Europæis*," and which he returned to me as varieties of *femoratum*, without expressing any doubt upon the point. This led me to mention it in our catalogue of the insects of Northumberland and Durham, at page 237, as a "pretty variety" of *femoratum*, and as such it has since stood in my collection. After a very careful examination of my series of *anglicanum* and its allies, I am of opinion that, although some of its forms come very close to varieties of *femoratum* and *Bruzellense* (less so to small dark *littorale*), yet it is indeed a good and distinct species, and which I hope will remain a lasting proof of the acumen and unwearied perseverance of its talented sponsor.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, January 10th, 1870.

Blemus longicornis, Sturm, taken in Cumberland.—This beetle is so rare, that I am induced to record that I have in my collection three specimens, taken by myself out of *rejectamenta*, on the Irthing, near Burtholme, in June. This locality is a little lower down the river than Lanercost, and just where it makes a sharp turn westward.—ID.

Phyllotoma melitta, Newman, = *Fenusa betulæ*, Zaddach.—In the last number of his "Entomologist," Mr. Newman describes a saw-fly as *Phyll. melitta*, and the history of the larva, which mines birch leaves, is detailed by Mr. Healy. Through the kindness of the last-named gentleman, I have received two examples of this insect, and find it identical with *Fenusa betulæ* of Zaddach (Besch. neuer oder wenig

bekannt. Blattw., 1859), who also gives a brief notice of the larva and its habits. The words in the description of *P. melitta* "antennæ shorter than the thorax" must result from a slip of the pen, as Mr. Healy's specimens have these organs longer, if anything, than the head and thorax together, as they should be according to Zaddach. The insect is a true *Fenusa* and not a *Phyllotoma*; the latter genus has from 11 to 15 antennal joints, whereas in *Fenusa* there are only 9 (or exceptionally 10); moreover, the lanceolate cell ("lanzett-förmige Zelle," Hartig) in the fore-wings is very differently shaped in the two genera—in *Phyllotoma* it extends nearly to the base of the wing with a notch in its lower edge, and includes one oblique veinlet; in *Fenusa* it is of the form of a pointed oval or loop, a long peduncle connecting it with the base.—R. McLACHLAN, Lewisham, 18th January, 1870.

Note on the pairing of Odynerus spinipes, Linn.—*Odynerus spinipes* takes its specific name from the curious tridentate structure of the femora of the intermediate legs in the male. As I was unable to learn the use of this development, until I observed it for myself, my observation is possibly worth recording.

The structure above referred to is used by the male to imprison the wings of the female in pairing. By a very rapid movement he places himself on the back of the female, and at the same instant secures her wings, the nervures of which, near the base of the wing, fit into the spaces between the teeth of the femur, and are held there by the tibia being closed on them, and bent almost parallel with the femur, the tarsi of the opposite sides, crossing close under the body of the male; the costal nervure might rather be said to occupy the hollow at the base of the tibia. The "spines" of the femur, in fact, fit between the nervures of the wing, and are, with merely the membrane of the wing between, in contact with the tibia. The wings are thus held securely in a slightly elevated position, and at an angle of about 90° with those of the opposite side. The anterior claws of the male hold by the anterior angles of the thorax of the female, and his long antennæ are directed straight forwards, their curled extremities seizing the scapes of the antennæ of the female.

The female, thus securely pinioned, still resists pairing; which I have never seen occur, although I have seen the female so held for several minutes. This was in insects in confinement. I have only once made the observation on the wasp at large, and on that occasion pairing failed to occur. Except in bright sunshine the males are very sluggish.—T. ALGERNON CHAPMAN, M.D., Abergavenny, January, 1870.

Morayshire Lepidoptera.—I spent six weeks (August 9th—September 20th) with my friend, Mr. George Norman, at Forres, N. B., and had some very pleasant collecting. This locality, like many in Scotland, only needs well working to produce an abundance of good insects. The extensive sandhills (barren as the Author of the "Lepidopterist's Guide" could possibly desire), moors, and woods of birch and pine, afford a rich and unusually varied field for the entomologist. Except the *Noctuæ*, but little is known of the *Lepidoptera* of the district, and I do not think even they are yet quite worked out.

The only butterflies of note which I saw were *H. Semele*, on the Culbin sands (I believe a scarce species in Scotland) and *E. Blandina*, common throughout the district. I succeeded in obtaining a considerable number of eggs of this species

for Messrs. Buckler and Hellins, and noticed that the butterflies while in confinement drank frequently from a wet sponge, besides feeding on treacle, and I think it possible that it will be found advantageous with other species, when trying to get eggs, to supply them with water.

Larvæ of *O. fascelina* and *antiqua*, *B. rubi* and *Saturnia carpini* occurred on the heaths; and what I suppose to be *D. coryli* on birch.

Of the *Geometræ*, I may mention *Larentia olivata*, common early in August; *Eupithecia pulchellata*, *satyrata*, *nanata*, and *absynthiata*, the larvæ of which fed on fox-glove, *Erica cinerea*, *Calluna vulgaris*, and rag-wort respectively; also *Eup. sobrinata* by mothing on a heath. Though I several times examined the seeds and flowers of *Angelica sylvestris*, I failed to discover any trace of *albipunctata* or *trisinaria*.

The larvæ of *T. juniperata* were not scarce, but many were ichneumonised. *Thera variata* struck me by (contrary to the usual rule) being paler than in the south; the imago and small and large larvæ occurred on the same day (August 23rd).

No *Drepanulæ* or notable *Pseudo-bombyces*. Of the *Noctuæ*, a good many species occurred; the following are the best—*A. leporina*, larvæ; *A. myricæ*? larvæ (if I breed the moth I will send a further notice); *C. graminis*, *N. xanthographa*, *A. valligera* (1), and *M. fasciuncula* (2), all on rag-wort flowers in full sunshine. *M. literosa*, sugar, August 15th—September 10th; *A. cursoria* (accompanied by *X. polyodon*, *T. pronuba*, *L. orbona*, and *S. anomala*) burnt out of the bent-grass (*Psamma arenaria*), August 11th and 21st; *A. nigricans*, at rest, August 22nd, in a greenhouse; *A. præcox* in the same, August 14th; also *orbona*, *tritici*, *tragopogonis*, &c. This formed an excellent trap: the moths getting in at night, and being unable to get out, were found at rest in the day time. The *præcox* was stowed away amongst the leaves of a small species of *Tropæolum*; the glaucous green of the leaves being so like the colour of the moth that its discovery was quite an accident. *A. tritici*, common, mothing, especially after 11 p.m., one or two at sugar, August; *A. agathina*, common, flying in the evening on a heath, August 20th to September 8th (a friend took one at sugar); *Triphaena orbona*, marvellous red and black varieties, quite unlike southern specimens; *T. subsequa* (1), worn, at sugar, September 15th (this may be distinguished from *orbona* by the narrowness of the fore-wing); *N. glareosa*, August 17th—September 18th, on the wing, and at sugar; *N. conflua*, August beg.-mid., sugar; *N. Dahlii*, sugar and flying, August 10th to September 18th; *N. neglecta* sugar, in a pine wood, and at heath-bloom, August 20th—September 4th; *N. xanthographa*, very dark varieties, and one with the *stigmata* very large and almost confluent; *Euperia fulvago* (1), at sugar, September 7th, and one at "Cossus sap," September 16th. (I may here say that Mr. Norman pointed out to me that moths may not only be often found *below* the sugar, but a foot or two *above*, or on the *other side* of the tree, and, in the case of *C. exoleta* and *C. vaccinii*, hanging on to the twigs nearest to the sugar. This is more frequently the case on some nights than others; sometimes more will be found a foot off the sugar than on it). *Polia chi*, common at rest on *white walls*, where it is difficult to see, and also on *dark pine trunks*, where it is very conspicuous, August 24th to September 11th (Mr. Norman took two at sugar); *Epunda nigra*, at sugar, at rest on pine trunks and *on and among pebbles on a gravel walk*, August

10th to September 20th; *Aplecta occulta* (2), at sugar, August 16th and September 16th (obtained a lot of eggs); *H. pisi*, larvæ, new to the district; *C. exoleta* and *vetusta*, sugar, September; *Stilbia anomala*, ♂ common on the wing, ♀ scarce.

No *Deltoides* or *Aventiæ*.

Scopula lutealis; one moth layed its curious flat scale-like eggs upon its dead comrade! These eggs were laid upon the wings; but a specimen of *Epunda nigra* out-did *lutealis*, as it laid 50 or 60 eggs upon its own hind leg!

Scoparia muralis, on cottage walls, often close under the thatch; excessively abundant on one cottage, keeping out in good condition (unlike most *Scopariæ*) all the summer, till the middle of September. On this same cottage wall, after 11 at night, *A. tragoponidis*, *H. micacea* and *L. testacea* were common, often in cop.

Scoparia truncicolella, not common, in a pine wood; and, with it, *Phycis abietella*, August 23rd.

The *Micro-Lepidoptera* of this place have been almost entirely neglected; the following is a list of all that I took in nameable condition:—

Tortrix ribeana, *xylostæana*, and *unifasciana*, with a very distinct fascia; *Peronea farillaceana* (Mr. N.); *P. mixtana*, *hastiana* and *maccona*, all bred from larvæ found on willow, *Myrica gale*, &c.; *ferrugana* just coming out as I left. *Teras caudana* (scarce) and *contaminana*; *Penthina betuleta*, *Cnephasia subjectana*, *Grapholita Paykulliana*, var. *costana* commoner than the type; *Penkleriana*, common, as usual, amongst alders; *Pædisca corticana*, small, distinctly marked varieties, common during all my stay; *Solandriana*, scarce; *E. pinicolana*, Mr. Norman took this on a heath; *Retinia resinana*, the large lumps of resinous matter formed by last year's larvæ, and often containing the empty pupa cases, were common; *D. Petiverana*, *E. angustana*, and *A. pratana* (scarce).

Plutella xylostella. *Depressaria costosella*, *atomella*, *umbellella*, *arenella*, and *assimilella* (!) all occurred upon twigs of broom and furze at night. Some varieties of *costosella* had the veins and some lines on the thorax fuscous, and in other respects different from the type; but, unfortunately, connecting forms occurred. Of *D. discipunctella* (*pastinacella*), a specimen was brought to me. *E. fenestrella* and *C. Hübnerella*, among furze; *G. humeralis* (*Lyellella*), *terrella*, and *mulinella* were all beaten out of furze; *A. Gædarta* was common, of course, among birches, and *C. radiatella* (beautiful varieties) among oaks; *C. costella*, *C. pseudo-spretella*. A beautiful specimen of *G. stramineella* came out of an oak; the forewing is suffused with rich red-brown. Mr. Norman has since sent me a typical specimen from the same locality.—G. B. LONGSTAFF, New College, Oxford, October 31st, 1869.

Description of the larva of Hypenodes costæstrigalis.—For eggs of this species I am indebted to Mr. T. J. Carrington, who sent me some on July 8th, 1868. Unfortunately, I have mislaid the notes I took of their appearance, but I know I was the more struck with it, because it did not correspond with my recollection of the eggs sent me by Dr. Knaggs, in 1865.

However, I know that these sent by Mr. Carrington were deposited singly, and were of the usual *Noctua*-shape, and dark-red in colour.

The larvæ were hatched on July 12th and 13th, and, after a little hesitation, seemed to take kindly enough to the flowers of *Thymus serpyllum*; I cannot help

thinking that they also took kindly to one another—in the style of Hamlet's uncle, "a little more than kin, and less than kind;"—for, although I never caught one in the act of cannibalism, somehow they became fewer and fewer in number, until, by August 12th, there remained but one full-grown larva to be described.

The newly-hatched larva is quite translucent and glossy, in colour rose-pink, rather paler towards the tail; the head blackish; the skin furnished with some bristles. At the end of a week it had lost much of its translucent look, the colour had become more of a claret, the bristles had disappeared. At the end of another week or ten days, much of the purplish-red had vanished, and the colour had become a dark brown. On August 12th, the full-grown larva was thus described:—Length, when stretched out in walking, about $\frac{1}{2}$ -inch; but its general attitude is to "hunch up" its middle segments into a close loop, keeping the front and hind segments close to the surface on which it is resting; and for this position the figure seems specially adapted, the head and three following segments being much smaller than the 5th, 6th, 7th, and 8th, all four of which are tumid, and the hinder segments being also somewhat smaller; there are but two pairs of ventral legs, or 12 legs in all. The colour of the back is dark purplish or crimson-brown, very glossy, making it hard to distinguish the obscure markings on it; through the back runs a slightly paler central stripe; the sub-dorsal line is faintly seen as a paler brown line, edged with blackish below; the sides and belly are paler, and more ochreous in tint; taken altogether, the larva has a general appearance of a dingy, dark, chocolate colour.

August 15th, my larva became a pupa, naked, because I had unfortunately disturbed it whilst setting about a slight cocoon: its length was about $\frac{1}{4}$ -inch, its shape blunt at the head, tapering gradually towards the tail, which was rounded, not acute, cylindrical, with polished surface; in colour it was all over alike, of a pale green, faintly tinged with brown.—J. HELLINS, Exeter, December 2nd, 1869.

Early breeding of Aplecta occulta.—Last autumn I had eggs of this moth given me by my friend Mr. G. B. Longstaff, from a ♀ taken at Forres. These hatched in due time, and fed up on *Plantago lanceolata*, growing, however, very irregularly. By the 12th December, some four had gone under the moss to change.

On the 11th January, I was surprised to find a fine ♂ specimen of the perfect insect in my breeding cage. The larvæ and pupæ had been kept during the whole time in a room, which had a fire during the day-time.

Many pupæ of *Noctuæ*, such as *piniperda*, &c., which usually produce the perfect insect much earlier than *occulta*, were in the same box, and are yet unchanged. This early breeding of *occulta* seems to be worth recording.—GEO. NORMAN, Ben Rhydding, 12th January, 1870.

More abnormal appearances of Lepidoptera.—A male *Selenia illustraria* emerged on New Year's day. Like the one recorded in last month's Magazine (p. 190) it was the *spring*—not the *summer*—form. On this day (January 14th) a fine ♀ *Eupithecia helveticata* has made its appearance. Am I a privileged individual, as regards these abnormal appearances which I have recorded, or have others experienced the same? I would repeat that, in all the cases, the pupæ have been kept in a cold room, at the top of the house, facing the north.—J. GREENE, Apsley Road, Redland, Bristol, 14th January, 1870.

Note on Hydrilla palustris.—The specimen of *Hydrilla palustris* taken in Cambridgeshire, and referred to by Dr. Knaggs at p. 124 of this year's "Annual," was exhibited at the Entom. Soc. on May 2nd, 1864 (vide Ent. Mon. Mag., vol. i, p. 23), and was, as there stated, taken in Quy Fen on May 29th, 1862, by Mr. Scholfield. The insect was disturbed from among some half dried grass which had been cut a day or two, and flew pretty quickly.

I was present and saw the capture made.—H. JENNER-FUST, Jun., Hill Court, Berkeley, January 2nd, 1870.

Lepidoptera captured at Guestling in 1869.—Notwithstanding the unfavourable season, I have met with about 20 species of "*Macros*," which I had not previously found here. Some are generally reputed common,—as *Anticlea badiata*, *Eubolia mensuraria*, and *Agrotis suffusa*,—which I had often wondered I had not seen before; while a few have the reputation of being somewhat scarce,—as *Nola strigula* and *Ephyra orbicularia*.

In the following notes, the date given is the first day on which each species was observed.

The season began early, for, on January 28th, *Eupithecia pumilata* was found dead in a breeding cage in the open air; another specimen appeared on February 6th. April 2nd, *Tæniocampa miniosa*, three, at willows; May 5th, *Anticlea derivata*, one specimen in the Rectory garden; 27th, *Lithosia aureola*, one specimen; June 6th, *Diphthera Orion*, one found at rest on an oak trunk, another bred a few days after from a pupa, found, I believe, under moss; July 9th, *Halias quercana*, one by mothing, one by beating; 10th, *Calligenia miniata*, this was in abundance, flying at dusk; 12th, *Limacodes testudo*, two specimens, one utterly spoiled in securing it; *Nola strigula*, by mothing; 14th, *Dicranura furcula*, *Erastria fuscata*, *Pericallia syringaria*, and *Tephrosia crepuscularia*, one of each, by mothing (the species I recorded last year as *T. biundularia*, should have been *T. crepuscularia*); 16th, *Phycis roborella*, *Rhodophæa consociella*, and *Rhodophæa advenella*, several of each, by mothing, and at light; 21st, *Odontia dentalis*, one bred this day from larvæ collected on the beach, at Pett (misprinted last year, "beech at Pelt"), no more appeared for more than a fortnight; August 5th, *Eupithecia subfulvata*, one, at light; 7th, *Liparis chrysorrhæa*, a nice series, bred from larvæ taken at Pett; 9th, *Cucullia asteris*, one, at light; 10th, *Clostera reclusa*; 13th, *Platypteryx hamula*, two this evening, at light; 16th, *Agrotis puta*, one, at light; 17th, *Ephyra orbicularia*, three specimens; *E. porata* and *E. punctaria* have been abundant this year; 26th, *Camptogramma fluviata*, ♂, by mothing; September 3rd, *Acherontia Atropos*, a specimen of the brown variety of the larva was brought to me, which I sent to Mr. Buckler to be figured; 9th, *Sphinx convolvuli*, a few days after this, two were seen in my garden, and continued to appear until October 8th, and one was seen so late as the 15th of that month; 22nd, *Agrotis saucia*, took five at different times at sugar, and saw others: 24th, *Noctua glareaosa*, by mothing. Several species which have been common in other years, were either not seen at all, or were represented by one or two specimens.—E. N. BLOOMFIELD, Guestling Rectory, Hastings: November 18th, 1869.

Obituary.

MR. BENJAMIN D. WALSH.—With sincere regret we have to announce the death of this well-known American entomologist. Rumours of such an event having taken place had been current in England for some weeks, but it was not

until recently that their un-hoped-for confirmation arrived. In Mr. Walsh our Transatlantic brethren have lost one of their most energetic workers, a man who probably did more than any other entomologist, either in Europe or America, to demonstrate the necessity for scientific advisers, when absurd prejudices and superstitions regarding the causes, effects, and treatment of the depredations caused by insect-pests, surmount all other considerations in the minds of the sufferers. Though his bent evidently tended towards utilitarian entomology, Mr. Walsh stood prominently forward as a man of science, and his discovery of the male of *Cynips* will not soon be forgotten. A devoted adherent to the theory of Darwin, he at all times rendered to his scientific mentor the homage of a pupil, and, if we mistake not, the forthcoming works of our renowned philosopher will show how much he assisted him. Respecting Mr. Walsh's history, we cannot do better than extract the following from an American paper, dated the 26th December, 1869, believing it gives a true portraiture of the man—"The unexpected death of our State Entomologist, Benjamin D. Walsh, of Rock Island, from injuries resulting from his being run over by a railway train at that place, excites universal regret. He was a man of strong likes and dislikes—as good a hater as Dr. Johnson could have desired—and doubtless had his enemies among those whose opinions he had freely scouted, and whose wrong-doings he had unsparingly condemned; but his heartiness, his earnestness in the pursuit and dissemination of scientific truth, his efforts in popularizing and making his favourite study of entomology of immediate and practical value to our farmers and fruit-growers, will make him regretted and remembered by all.

"Born in England in 1808, and a graduate of Trinity College, he attained the honours of a fellowship which he resigned, and coming to Illinois, was engaged first in farming, afterwards dealing in lumber, and finally, as he attained a moderate competence, in pursuing his favourite study of entomology. As editor of the 'Practical Entomologist' in 1865-7, and afterwards associated with C. V. Riley, the State entomologist of Missouri, in the 'American Entomologist,' he has earned a national fame."

ENTOMOLOGICAL SOCIETY OF LONDON, 3rd January, 1870.—H. W. BATES, Esq., F.Z.S., President, in the Chair.

Mr. Hewitson sent for exhibition a magnificent collection of butterflies collected by Mr. Buckley, in Ecuador. Although in the locality for only a few months, he had in that time collected about 5,000 butterflies, including 135 species new to science. Mr. Buckley, who was present, gave some interesting details respecting the distribution, &c., of these insects; remarking that very few species occurred on both sides of the Andes, and that in *Heliconia* there seemed to be a species peculiar to each valley.

Professor Westwood exhibited drawings of a peculiar example of *Anthocaris cardamines* in the collection of Dr. Boisduval. This appeared to be a male in which the orange-tip of the fore-wings was variegated by patches of the white female coloration.

Mr. Bond exhibited two examples of *Acrydium peregrinum* from Cornwall; about 30 examples had been captured in that county, and in Devon, last autumn.

Professor Westwood, on behalf of the Rev. L. Jenyns, exhibited a species of *Aphodius* said to be frequently vomited by the Hottentots.

Mr. Müller exhibited photographs of *Abax parallelus* and *Clerus formicarius*; the former being remarkable for its zig-zag striation; the latter for its united bands.

Mr. Quaritch (present as a visitor) made some enquiries respecting a letter addressed to him from a lady in Ireland whose library had been much damaged by the "book-worm." A specimen exhibited as one of the culprits was *Lepisma saccharina*, which had evidently been mistaken for the *Anobium* to which the damage was really attributable. Professor Westwood said he had found the fumes of benzine the most efficacious agent for destroying those pests.

The Rev. A. E. Eaton communicated a paper "on some new British species of *Ephemeridæ*."

Mr. Butler read "descriptions of six new species of *Callidryas*."

Mr. Pascoe read "A revision of the genus *Catasarcus*," and exhibited numerous species in illustration thereof.

Mr. Crotch communicated a paper entitled "The genera of Coleoptera studied chronologically (1735—1801)."

HAGGERSTON ENTOMOLOGICAL SOCIETY, December 3rd, 1869.—Mr. E. Barlow, President, in the Chair.

The half-yearly meeting of this Society took place on the above date.

After the usual business was concluded the President called upon the Secretary to read his half-yearly report, he accordingly did so, observing during the course of his address that he was happy to inform the Members that the Society was in a flourishing condition, having a balance in its favour; that during the past six months 14 fresh Members had been elected; and that the cabinet had been enriched by kind donations from following gentlemen, namely, Messieurs Newman, Cooper, W. Harper, Jonas, King, Gainsbury, and Lorimer. Some beautiful varieties of *A. caja*, *A. cardamines*, *V. Atalanta*, *L. Alewis*, *H. leucophæaria*, *B. pilosaria*, *A. betularia*, *C. ferrugata*, and *S. tilie* had been exhibited at the weekly meetings. As regarded the Society's Library, that had not been forgotten, several additions having been made thereto, and a brother member, Mr. E. Newman, had presented the Society with a copy of his British Moths, and had given each member a copy of his Insect Hunters' Year Book for 1868. Amongst the many rare specimens of British *Lepidoptera* exhibited by the various members during the past half-year the following deserve special mention: *Colias Hyale*, *Erebia Cassiope*, *Lycæna Artaxerxes*, *Acherontia Atropos*, *Sphinx convolvuli*, *Sesia chrysidiformis* and *ichneumoniformis*, *Lithosia aureola* and *helvola*, *Chelonia plantaginis*, *Bombyx castrensis*, *Selenia illustraria*, *Psodos trepidaria*, *Fidonia carbonaria*, *Eupithecia pusillata*, *Lobophora polycommata*, *Cidaria picata*, *Platypteryx hamula*, *Stauropus fagi*, *Ptilophora plumigera*, *Notodonta dictæoides*, and *dodonæa*, *Cymatophora ridens*, *Acronycta leporina*, *Cirrædia xerampelina*, *Dianthæcia Barrettii*, *Dasypolia Templi*, *Cucullia chamomillæ*, *Heliothis dipsacea*, *Anarta melanopa* and *cordigera*, *Plusia interrogationis*, *Scoparia paralis* (*alpina*), and *Hypercallia Christiennana*. In conclusion, he congratulated the Members on the great success of the Society's "Exhibition" which took place on the evenings of the 18th and 19th of November last, several leading Entomologists having honored the Society by their attendance, and the Society's Meeting Room being crowded each evening with Entomological friends and visitors, many of the latter expressing the great pleasure they had derived from an inspection of the many beautiful objects that had been submitted to their notice.

CHANGE OF ADDRESS.

J. KIDSON TAYLOR, from Thorn Cottage, Lime Grove, Longsight, to 3, Shakspeare Terrace, Old Trafford, Manchester.

EXCHANGES.

Duplicates.—A. cardamines (♂ ♀), V. Atalanta, H. Semele, C. Pamphilus, P. Alexis, L. Megæra, M. stellatarum, M. brassicæ, X. polyodon, A. grossulariata, A. filipendulæ. *Desiderata*.—G. rhamni, C. Edusa, L. sinapis, H. Tithonus, V. Io, and any of the "hair-streaks," or "skippers." *Desiderata* among the moths too numerous to mention.—E. MACDOWELL COSGRAVE, 69, Eccles Street, Dublin.

Duplicates.—S. Semele, C. Davus, P. Argiolus and Adonis, C. dominula, L. dispar, C. plantaginis, A. fuliginosa, B. quercus, L. salicis, O. potatoria, E. tiliaria, A. ulmata, S. illustraria, L. cæsiata, A. pictaria, S. undulata, C. boreata, S. juniperata, C. spartiata, E. decolorata, L. multistrigaria, H. leucophearia and aurantiaria, H. pennaria, H. wavaría, C. diluta, B. perla, A. oculea, S. fimbria, X. cerago, A. rumicis, M. oxyacanthæ, A. tritici, C. vaccinii, T. gothica, H. crassalis, B. hyalinalis, for other larvæ, pupæ, or imagos.—G. ELISHA, 2, Cross Street, Ashley Crescent, City Road.

British Ichneumonidæ.—The Rev. T. A. MARSHALL will be much obliged to any entomologist who will lend for examination any British *Ichneumonidæ* that he may possess; and particularly desires to see such as are reared by Lepidopterists, if accompanied by notes of the species upon which they are parasitic.

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TO CORRESPONDENTS.

A review of M. Albert Fauvel's "Faune Gallo-Rhenane" (2^{me} livr.), and communications from Messrs. Barrett, Bold, Buckler, Champion, Chapman, Douglas, Hellins, Hewitson, Scott, Zeller, and others, are unavoidably excluded; we have endeavoured, as far as possible, to give effect to the maxim, "first come, first served."

NOTICE.

Vols. ii, iii, iv, and v, of the Magazine, strongly bound in cloth, price 7s. each. The sale of Vol. ii will soon be as restricted as that of Vol i; that is to say, it will only be obtainable by purchasers of the succeeding Vols.

Will be published shortly,

A LIST OF BRITISH ICHNEUMONIDÆ, according to the best modern authorities, and with a few of the less obvious synonyms; by the Rev. T. A. Marshall, M.A.

BRITISH LEPIDOPTERA.

MR. J. C. STEVENS begs to announce he has received instructions from Dr. Knaggs,* to sell by Auction, about the middle of March next, his Collection of BRITISH LEPIDOPTERA, and the 40-DRAWER CABINET, by Standish, in which it is contained. The day of sale will be announced in future advertisements.

*Although I am giving up my collection of British Lepidoptera for the reason that professional engagements do not now permit me to bestow on it the care requisite to keep it in proper order, I shall at all times feel pleasure in naming, to the best of my ability, any species which may be sent to me for determination.—*H. G. K., Kentish Town, N.W.*

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No. 70.]

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COLEOPTERA.

ON Wednesday, 21st March, will be sold, at the Auction Rooms, Rue Drouot, Paris, the celebrated Collection of COLEOPTERA, of the late M. Doué, Librarian of the Entomological Society of France.

This Collection is renowned for the beauty and rarity of the species (mostly exotic), their perfect state of preservation, and the elegance of the boxes in which they are contained.—G. BOULLAY, Rue Hautefeuille, Paris.

A LIST OF BRITISH MACRO-LEPIDOPTERA WHICH HYBERNATE IN THE EGG STATE.

BY THE REV. J. HELLINS, M.A.

Since the publication of my note on the hybernating ovum at p. 166 of this vol., I have collected some information which may be of interest.

Perhaps I ought to say, that the question I put in my former note had been previously started in the course of a correspondence between Dr. A. Wallace and Dr. T. A. Chapman. The former had satisfactorily established the fact that the larva of *Bombyx Yama-Mai* is perfected within the egg shell a month after deposition, and therein hybernates, not emerging till spring; and he was anxious to know if this were the case generally with those species which pass the winter in the egg. Had I thought of this question some years ago, I might have made better use of opportunities, which have presented themselves from time to time, and then I could have given dates for a great many species; however, my deficiencies have been made up by friends, and so, from my note books reaching back to 1857, and by the kind help of Dr. T. A. Chapman, Revs. Bernard Smith and H. Harpur Crewe, and Messrs. C. G. Barrett, W. Buckler, T. J. Carrington, A. H. Jones, W. Machin, and J. Traill, I have got together what follows.

During this winter, eggs of *Bombyx mori*, *Trichiura cratægi*, *Ennomos tiliaria* and *angularia*, *Cheimatobia brumata* and *boreata*, *Scotosia vetulata*, *Ptilophora plumigera*, *Xanthia aurago* and *Polia chi* have been examined from time to time up to the middle of January; and so far—with one exception only—nothing but the faintest traces of the future larvæ have been detected by microscopic examination of their still fluid contents. At the *last* examination—about January 14th—the larva of *X. aurago* was found partially developed, but not to such a degree that it could be extracted from the shell in the larval form. So far, therefore, the guess formed by Dr. Chapman and myself, that, as a general rule, the larva is not developed till after hybernation, has been confirmed. Still there are many more species to be examined, far more indeed than I imagined till I set myself to make the list of them, which I now give in two divisions; the first containing those species, the dates for the deposition of the egg and the hatching of the larva of which can be vouched for either by myself, or by one or more of my above-mentioned correspondents; and the second giving the species, about which we have no positive information, but which we believe to have the same habit. I think it probable that the names of some others ought to be added.

I.

NAME OF SPECIES.	EGG LAID.	LARVA HATCHED.	NAME OF SPECIES.	EGG LAID.	LARVA HATCHED.
<i>Lycæna Ægon</i>	July	March	<i>Chesias spartiata</i>	October.....	April, May
<i>Hesperia comma</i>	August.....	March, April	<i>Tanagra chærophyllata</i> ..	June	February, Marc
<i>Liparis dispar</i>	Do.	April	<i>Petasia cassinea</i>	November..	April
<i>monacha</i>	Do.	Do.	<i>Ptilophora plumigera</i> ...	Nov., Dec..	Do.
<i>Orgyia antiqua</i>	July, Sept.	Do.	<i>Heliophobus popularis</i> ...	September..	Feb., March, Ap
<i>Trichiura cratægi</i>	Aug., Sept., Oct.	March, April	<i>Charæas graminis</i>	Do.	March
<i>Pœcilocampa ponuli</i> ...	Nov., Dec.	March	<i>Luperina cæspitis</i>	Do.	April
<i>Clisiocampa neustria</i> ..	July, Aug.	March, April	<i>Orthosia suspecta</i>	July, Aug..	Do.
<i>castrensis</i>	Do. Do.	Do. Do.	<i>lota</i>	September..	Do.
<i>Epione apiciaria</i>	August.....	May	<i>macilenta</i>	November..	March
<i>vespertina</i>	July, August	Do.	<i>Anchocelis rufina</i>	September..	March, April
<i>Crocallis elinguaris</i> ...	August.....	February ..	<i>pistacina</i>	Do.	March
<i>Ennomos alniaria</i>	September	May, June ..	<i>litura</i>	Do.	March, April
<i>tiliaria</i>	August.....	Do. Do.	<i>Xanthia citrargo</i>	Aug., Sept..	March
<i>fuscantaria</i>	Do.	Do. Do.	<i>cerago</i>	September..	Do.
<i>erosaria</i>	Do.	Do. Do.	<i>silago</i>	Sept., Oct..	Do.
<i>angularia</i>	July, August	April, May	<i>aurago</i>	September..	March, April
<i>Himera pennaria</i>	October	April	<i>gilvago</i>	Do.	March
<i>Fidonia pinetaria</i>	July	March	<i>ferruginea</i>	Sept., Oct..	Do.
<i>Hybernia aurantiaria</i>	November	Do.	<i>Cirr hædia xerampelina</i> ..	August	April
<i>defoliaria</i>	Oct., Nov.	Do.	<i>Tethea subtusa</i>	July, Aug..	Do.
<i>Cheimatobia boreata</i> ..	Nov. Dec.....	March, April	<i>Cosmia trapezina</i>	Do. Do....	Do.
<i>brumata</i>	Do. Do.....	Do. Do.	<i>diffinis</i>	Do. Do....	April, May
<i>Oporabia dilutata</i>	Oct., Nov.....	Do. Do.	<i>affinis</i>	Do. Do....	Do. Do.
<i>fligrammaria</i>	September	February ..	<i>Polia chi</i>	Aug., Sept.	March
<i>Melanthia rubiginata</i>	July	April	<i>flavocincta</i>	September..	April, May
<i>Scotosia vetulata</i>	Do.	March (?) ..	<i>Epunda viminalis</i>	July	March
<i>Cidaria immanata</i>	August.....	March, April	<i>Miselia oxyacanthæ</i>	October.....	Do.
<i>prunata</i>	Do.	April	<i>Agriopsis aprilina</i>	Do.	Do.
<i>testata</i>	Do.	Do.	<i>Amphipyra pyramidea</i> !	Do.	March, April
<i>populata</i>	Do.	Do.	<i>tragopogonis</i>	September..	Do. Do.
<i>dotata</i>	Do.	Do.	<i>Catocala sponsa</i>	August.....	April
<i>Eubolia cervinaria</i>	November	April, May..			

II.

<i>Halia wavaria</i> ?	<i>Scotosia rhamnata</i> ,	<i>Dicycla oo</i> ,
<i>Eupithecia tenuiata</i> ,	<i>Gortyna flavago</i> ?	<i>Cosmia pyralina</i> ,
<i>rectangulata</i> ,	<i>Tethea retusa</i> ,	<i>Catocala nupta</i> ,
<i>debiliata</i> ,	<i>Euperia fulvago</i> ,	<i>promissa</i> .

Into the question of the gradual formation of the larva within the egg shell, I do not pretend to enter ; my note must be regarded simply as a contribution towards clearing up those points in the æconomy of our *Macro-lepidoptera*, on which the numerous books, which are published to tell us all about them, fail to throw any light.

Exeter : January 25th, 1870.

P. S.—On communicating the above notes to my friend Mr. McLachlan, he very kindly looked up some papers, which he remembered to have read in Continental publications, namely, two contributions by Von Prittwitz to the Stettin. Zeitung, 1861, p. 191—221,

and 1862, p. 481—509, entitled, “Die Generationen und die Winterformen der in Schleischen beobachteten Falter;” and also Rössler’s “Verzeichniss der Schmetterlinge des Herzogthums Nassau,” 1866; and from them has extracted a list of the British species mentioned by these writers, amongst those which they speak of as hybernating in the egg; Von Prittwitz gives seven of the species mentioned in my list No. 1, and the following eight in addition :—

Argynnis Paphia,	Thecla quercûs,	Thecla betulæ,
Chortobius Pamphilus,	w-album,	Liparis salicis.
Lycæna Agestis ?	pruni,	

Rössler gives 47 species mentioned in my first list, and 31 others besides (some of which, however, I had put in my second list), viz. :—

Thecla betulæ,	Eupithecia debiliata,	Tethea retusa,
w-album,	Thera juniperata,	Euperia fulvago,
pruni,	firmata,	Dicycla oo,
quercûs,	Cidaria fulvata,	Cosmia pyralina,
Nola cucullatella,	pyraliata,	Polia nigrocincta,
strigula,	Diloba cæruleocephala,	Hadena protea,
Liparis salicis,	Cymatophora diluta,	Toxocampa craccæ,
Halia wavaria,	Nonagria geminipuncta,	Catocala fraxini,
Eupithecia tenuiata,	typhæ,	nupta,
sobrinata,	Orthosia upsilon,	promissa.
rectangulata,		

A few of the species, however, given in these lists, seem to have crept in by some mistake; for instance, Mr. Buckler found when he reared *A. Paphia* from the egg, that the larva hatched in August, hybernated, and fed up in spring; also in the case of *C. Pamphilus*, eggs laid in May became perfect insects by the following August; perhaps, however, Von Prittwitz may refer to the eggs laid by these August butterflies. As to *Lycæna Medon* = *Agestis* (indicated with great doubt by Von Prittwitz), Professor Zeller has elaborated its history with great care (*v. E. M. M.*, vol. iv, p. 74), and he there states that the larvæ hatch before August 31st, and hybernate in the same stage.

Orthosia upsilon I know nothing about myself, but several of my friends tell me it hatches in September, and hybernates as a larva; *Polia nigrocincta* has been the subject of notes by Messrs. H. Doubleday and C. S. Gregson, at p. 90 and 116 of the current vol. of *E. M. M.*, and it appears that, whilst the latter gentleman gives it as a species hybernating in the larva stage, Freyer and Millière, as well as Rössler, class it with those of which the eggs do not hatch till spring.

I ought to have been able personally to vouch for *Cidaria pyraliata* and *fulvata*, but they had escaped my recollection.—J. H.

DESCRIPTIONS OF NEW SPECIES OF DIURNAL LEPIDOPTERA
FROM MADAGASCAR.

BY CHRISTOPHER WARD.

The four new species here described have been recently received by me from Mr. Alfred Crossley, my collector in Madagascar. Amongst other good species, he sent a series of the rare *Papilio Lalandei*, including the female, which had not been hitherto taken; it differs from the male only in the marking that crosses the discoidal cell of the upper wing being narrower, and light yellow instead of lavender.

PIERIS MANANHARI, *n. s.*

♂. Upper-side: *Anterior wing* yellow; the apical angle black, containing four yellow markings mingled with black; a small black spot at the extremity of the discoidal cell. *Posterior wing* entirely yellow, lighter towards the base and inner margin. Under-side: *Anterior wing* light yellow, darker at the base and apex; a small black spot at the extremity of the discoidal cell; a second black spot between the second and third nervures. *Posterior wing* yellow, deeper than in the anterior; with an indistinct narrow marking commencing near the centre of the anterior margin, continued downward, and crossing midway to the inner margin.

♀. Upper-side: *Anterior wing* white, with a broad black margin, which is widest at the apex; a black spot at the end of the discoidal cell. *Posterior wing* yellowish-white, the broad black margin continued round to, and narrowing at, the anal angle. Under-side: *Anterior wing* white, with black margin, excepting at the apex which is orange; a black spot at the extremity of the discoidal cell. *Posterior wing* orange, with a narrow, irregular, black band, commencing near the centre of the anterior margin, and continued downward, crossing midway nearly to the inner margin. This band is much more distinct in the ♂ than in the ♀. Expanse, ♂ ♀, $2\frac{1}{2}$ inches.

A remarkable species, which almost appears to connect *Anthocaris Ione* with *Pieris*.

ERONIA VOHEMARA, *n. s.*

♂. Upper-side: *Anterior wing* pointed at the apex, white; the space from the middle of the anterior margin, across the cell, and down to the middle of the hind margin is bright yellow; apical margin black. *Posterior wing* entirely yellowish-white.

♀. Under-side: *Anterior wing* orange, shading to white at the

inner margin; a black spot at the extremity of the discoidal cell. *Posterior wing* entirely orange. Expanse $2\frac{7}{16}$ inches.

A well marked species.

Mr. Watson, who has examined the plumules, finds them quite distinct from those of any other.

DANAIS NOSSIMA, n. s.

♂. ♀. Upper-side: *Anterior wing* white with a black margin continued entirely round; apical angle black, containing two white spots; a triangular black marking immediately above, and partly running into, the extremity of the discoidal cell, containing two small white oval spots near the upper margin; a similar marking at the hind margin, with small white spots near its edge (in some examples these two triangular black markings are confluent). *Posterior wing* white, with a black band continued round the outer margin, changing to brown at the anal angle, and containing a number of small white spots.

♂. ♀. Under-side: as in the upper-side, except that the white spots in the black band are much more numerous. Base of wings, and nervures, black. Expanse, ♀, 3 inches; ♂, $3\frac{3}{16}$ inches.

Allied to *Danaïs Ochlea*.

“Frequents only the tops of the highest-trees” (Crossley).

JUNONIA ANTEVA, n. s.

♂. Upper-side: *Anterior wing* strongly falcate; bright rufous-brown, shading to dark brown at the outer margin; apical angle brown-black, containing a transverse light blue band, faintly interrupted by three nervures running through it. *Posterior wing* curved inwards at the anal angle; rich deep brown, paler at the base; two narrow, waved lines, of a darker brown, following the margin, and meeting at the anal angle. Both wings with a beautiful purple bloom.

♀. Under-side: *Anterior wing* brown with two indistinct waved markings near the base. *Posterior wing* brown, with a narrow band crossing from the anal angle to the upper margin; six small white spots on the inner-side of this band; two short grey waved bands at the anal angle. *Body* brown. Expanse, ♂, $2\frac{8}{16}$ inches.

This species will be best placed between *Junonia Augustina* and *Jun. Cacta*, but is quite distinct from either.

“A rapid flyer and very wary” (Crossley).

Halifax: February, 1870.

DESCRIPTIONS OF NEW SPECIES OF *ERYCINIDÆ*, FROM CHONTALES,
NICARAGUA.

BY W. C. HEWITSON, F.L.S.

EURYGONA LABIENA, *n. s.*

Upper-side (male) : orange. Anterior wing with the costal and outer margins and apex broadly dark brown. Posterior wing with the costal margin, which is broad, and the outer margin, which is narrow, dark brown ; the inner margin paler brown.

Under-side : orange-yellow. Posterior wing with a sub-marginal series of minute black spots.

Exp. $1\frac{1}{20}$ inch.

Form of *E. Mys*, but larger.

EURYGONA ELMIRA, *n. s.*

Upper-side (male) : orange. Anterior wing with the costal margin from the middle, the apex (which is acute) and the outer margin, dark brown, with its inner border sinuated at the middle. Posterior wing long, the apex dark brown ; the outer margin darker than the rest of the wing.

Under-side : white. Both wings crossed beyond the middle by a rufous band, with the outer margin broadly pale grey-brown, marked by a series of minute black spots bordered with white.

Exp. $1\frac{9}{20}$ inch.

Size and form nearly of *E. Dorina*.

SYMMACHIA LEENA, *n. s.*

Upper-side : rufous-brown. Anterior wing with many indistinct red spots below the median nervure ; a minute spot on the middle of the costal margin, a second spot a little beyond this, and a third near the outer margin, before the middle. Posterior wing brick-red, with the base, the costal and inner margins, which are broad, the outer margin, which is narrow, and five or six spots between the median nervures, all dark brown ; some red spots near the base.

Under-side : dark brown. Anterior wing as above. Posterior wing with some grey spots between the median nervules and near the inner margin.

Exp. $\frac{18}{20}$ inch.

I have, I hope, described the spots on both sides correctly ; so many of the scales have been removed by mites that it is not easy to determine the original spots.

SYMMACHIA THREISSA, *n. s.*

Upper-side (male): black. Anterior wing marked at the middle of the costal margin by a triangular transparent white spot. Posterior wing with a broad unequal band of scarlet parallel and near to the costal margin.

Under-side: dark brown. Anterior wing with the inner margin silvery-grey.

Exp. $1\frac{4}{10}$ inch.

The largest known species.

In a small collection just received from Mr. Belt there are six species of this rare and beautiful genus—*S. accusatrix* of Westwood, *S. Probetor* of Cramer, *S. tricolor* and *S. rubina* of Bates, and the two species now added to the list.

MESENE XYPETE, *n. s.*

Upper-side (male): rufous-orange. Both wings with the outer margin, the fringe, and a sub-marginal band (broken into spots) dark brown. Anterior wing with the base, four triangular short bands (the spot near the apex longer than the rest) from the costal margin, two minute black spots, and one or two near the outer margin, all dark brown. Posterior wing with seven or eight brown spots below the middle, the two largest of which are placed thus, one near the apex, the other near the anal angle. Underside: as above; except that it is paler near the outer margins, and that both wings are marked by many small black spots.

Exp. $\frac{11}{10}$ inch.

Size and form of *M. Phareus*.

LIMNAS (?) BRYAXIS, *n. s.*

Upper-side (male): dark brown. The palpi, forehead, thorax, and sides of the abdomen, yellow. The centre of both wings, from the base to the middle of the outer margin, bright yellow; angular on the anterior wing and widest in the middle (in some specimens not touching the outer margin).

Under-side: as above; except that the base of the costal margin of the posterior wing is yellow, and that the abdominal margin has a broad fringe of pale yellow.

Exp. $1\frac{3}{10}$ inch.

This species is so singular in its appearance that it does not seem fitted to take its place in any described genus. It is too slender for

Limnas, but agrees very well generically with *L. Inaria*, which seems to me rather out of place where it is.

I am indebted to Mr. Belt for the six species now described.

Oatlands, Weybridge: 18th January, 1870.

DESCRIPTION OF A NEW SPECIES OF *BRACONIDÆ* BELONGING TO A
GENUS NEW TO BRITAIN.

BY THE REV. T. A. MARSHALL, M.A.

Among some parasitic *Hymenoptera* forwarded to me for inspection by Mr. Champion, are two females of the genus *PAMBOLUS*, Hal., Ent. Mag., iv, 49, ♂ = *Dimeris*, Ruthe, Stett. Ent. Zeit., xvi, 329, ♂ ♀; cf. ibid. xv, 344, ♀ only. This genus, hitherto known only on the Continent, is an interesting addition to our *Braconidæ*. The described species are two, *P. biglumis*, Hal. (♂ only), from Belgium,—and *P. mirus*, Ruthe (♂ ♀), found under moss at the roots of an oak near Berlin. Both are described as blackish, and may well be suspected of being identical, in which case the name *mirus*, Ruthe, must be dropped. The very different coloration of the present individuals leading to the conclusion that they are new, they are here described as

P. MELANOCEPHALUS, n. sp.

Sub-apterus, rufus, capite nigro; antennis apicem versus, abdominis segmento secundo, cum tarsorum apicibus, fuscis. Terebra abdominis dimidia parte paulo brevior. ♀. *Long. 1—1½ lin.*

Very finely punctulate, with pale, scattered, adpressed hairs. Antennæ 15-jointed, pubescent, joints 7—15 fuscous. Wings halteriform. Metathorax bispinose. Segment 1 longitudinally striolated, convex, semicircular, divided from the 2nd by a deep incision. All the rest of the segments are concealed by the 2nd, so that the large, ovate, sessile, and depressed abdomen appears bi-articulate, a character at once decisive of the genus.

Mr. Champion informs me that he found “one specimen on the downs near Box Hill in moss, and the other in dead leaves at Darent Wood.” Both were taken last October.

Barnstaple: February 7th, 1870.

Occurrence in Britain of Calodera rubens, Er.—Among some insects sent to me for names by Mr. G. C. Champion, I find a single specimen of a *Calodera* which I refer to *rubens*, Er. (Gen. et spec. Staph., 67; Ktz., Ins. Deutschl., ii, 142). Not having any type of that species, I sent Mr. Champion's insect to Dr. Sharp, who (though also happening not to possess an authentic type) also refers it to *C. rubens*. Its dull appearance and even and somewhat parallel form prevent its being confused with any of the recorded British *Calodera*; in fact, it can only be likened to a small specimen of *Homalota languida* (but with, of course, much more transverse joints to the antennæ). It is pitchy-black, with reddish-brown antennæ and legs, and is exceedingly finely and closely punctured all over.

Two specimens have subsequently been taken in a marshy place, near Lewisham, by Mr. Champion.—E. C. RYE, 10, Lower Park Fields, Putney, S.W., February, 1870.

Observations on Ceuthorhynchus distinctus, Bris.—M. Ch. Brisout de Barneville has just described (in L'Abeille, vol. vii, p. 42, February, 1870) a *Ceuthorhynchus* under this name, which he refers to the Pyrenees and England, as rare. From his account, it appears to differ from *C. marginatus* solely in having six joints to the funiculus, instead of seven. I entertain no doubt whatever that this is an insect which I sent to M. Brisout last year, and to the structural peculiarities of which I first drew his attention. I took one specimen of it on 12th July, 1863, at Dover; and at the same sweep of the net secured two or three undoubted *C. marginatus*. This specimen is recorded by me in the "Entomologist's Annual" for 1866, p. 105; and the result of that record was the discovery by Dr. Sharp and Mr. F. Smith of similar insects amongst their series of *marginatus*. Since that time, in June, 1869, being at Folkestone, where *marginatus* was tolerably common, I mounted and examined very many specimens of it, with the express object of finding more examples with six-jointed funiculus. In this I so far succeeded, as to find four such specimens, which I recorded at p. 58 of the present vol., as aberrant in structure. These I have now very carefully examined under the compound microscope, with the result that my former conviction of their specific identity with *marginatus* is corroborated; my chief reasons being that in one of these four specimens the funiculus of one antenna is six-jointed (the third joint of the funiculus being unduly elongated and having apparently absorbed what should have been the fourth joint, though with no apparent suture), and that in the other the funiculus is apparently seven-jointed, the third and fourth joints being anchylosed, but with a very evident indication of the usual articulation. If, in so limited a number as four examples, one so aberrant in structure be found, I see no difficulty in considering the other three as equally aberrant from (but still conspecific with) the numerous typical *marginatus* in company with which they were taken. These four specimens vary much in size (as does *marginatus*), two being as large as ordinary *marginatus*, and the other two rather smaller than my smallest example of that species. After a most careful and minute scrutiny, I fail to detect the slightest difference in structure, scaling or facies, between the specimens in which the funiculus is seven-jointed, and those in which it has only six joints.—ID.

Cryptocephalus bipustulatus a good species.—M. Gabriel Tappes, who is engaged

upon an exhaustive monograph of the European *Cryptocephalides*, makes some remarks (Ann. de la Soc. Ent. de France, 1869, ix, p. 7) of which I add a translation, as being likely to interest British Coleopterists:—"My own observations, "corroborated by those of several of my colleagues, and especially of Messrs. "Rouget, Godart, Varin and Peragallo, lead me to regard *Cryptocephalus bipustulatus* " (Fab.) as a species perfectly distinct from *C. bipunctatus*" (of which the British *C. lineola* is unquestionably a simple variety, although the type-form has not yet been discovered here.—E. C. R.). "The habitat of the two insects is not the same, and "the ridges formed by the striæ of the elytra are very much more evident, and "form a sort of rugosity not found in *C. bipunctatus*. It seems to me impossible to "maintain the mistakes of the past upon this point."—ID.

Note on the identity of Spanish and English species of Homalota.—Mr. Crotch, during his visit to the Asturias last summer, collected some specimens of the genus *Homalota*; and, with his usual kindness, has allowed me to make an inspection of them. I find that they agree in most cases exactly with our British examples; and, except in one or two instances, could not be distinguished from my Scotch specimens. The following is a list of the species.—*H. labilis*, Er., *elongatula*, Gr., *decipiens*, Sharp, *fungicola*, Kr., *merdaria*, Th., *boletobia*, Th., *cadaverina*, Bris., *fungi*, Gr., *orbata*, Er., *picipes*, Th., *analisis*, Gr. (the var. *major* of my Revision), *fusca*, Sahl., *inquinula*, Er., *sordidula*, Er., *clientula*, Er., *nigra*, Kr., *volans*, Scriba, *boletophila*, Th. (not yet a British species, but I think sure to be found here), *pygmæa*, Gr. (the dark var. found in Scotland), *macrocera*, Th., *parva*, Sahl., *analisis*, var. ? This last is the only one that presents a chance of being considered a new species.

I have little doubt that the species of *Homalota* are very widely distributed in Europe, and that their number will be found to be much smaller than would be supposed from the large number of British species. Indeed, I have evidence that two or three of Mr. Wollaston's species from Madeira are identical with our British ones, though still known by different names. I will mention here that *H. obliquepunctata*, Woll.=*H. pavens*, Er., and *H. montivagans*, Woll.=*H. pulchra*, Kr. In this latter case Mr. Wollaston's name stands.—D. SHARP, Eccles, Thornhill, Dumfries, February, 8th, 1870.

Further note on the parasitism of Aphodius porcus.—It appears that *Aphodius porcus* is rather a scarce species; and, several of my correspondents having asked me for specimens, I made an attempt to find them at the beginning of August last. With a view, at the same time, of further confirming the natural history of the species, I determined to search for them before they had left the 'sausage rolls' of *Geotrupes stercorarius* in which they had been reared. I had, however, great difficulty in finding the site of deposits of the previous autumn; but, after some failures, I discovered the remains of a burrow of *stercorarius*, the contents of which were in a semi-pulverulent condition, and contained six specimens of *A. porcus* (one of which I destroyed in my search) quite recently emerged from the pupal state, and one or two of which I clearly found to be contained in a cavity or cocoon partially framed of earth. I afterwards secured one more specimen, in another burrow, and in several other burrows I found a few larvæ, which, from size, &c., I suppose to be those of *porcus*. These, however, I failed to rear. I have also found some

full-grown larvæ and pupæ of *G. stercorarius*. The pupa lies in a firm cocoon, formed partly of earth and partly of the remains of the pabulum, usually at the far end of the tunnel where the egg was originally placed, the larva having traversed the tunnel backwards and forwards at least once (I suspect, oftener).—T. ALGERNON CHAPMAN, Abergavenny, January, 1870.

Agabus tarsatus taken in Northumberland.—I found, in a duplicate box, a single specimen of this recently introduced rare species, and which was taken by myself in this neighbourhood. It closely resembles in form and size *A. guttatus*, and, as such, I have no doubt passed it over at the time of capture; it differs however, from that spring-frequenting species in having the legs darker coloured, the upper surface covered with fine curved anastomosing striæ, and the two pale spots towards the apex of the elytra replaced by a piceous dash just within the margin, which reaches from the suture to quite one-third the length of the elytra.—T. J. BOLD, Long Benton, Newcastle-on-Tyne, January, 1870.

Captures of Coleoptera during the past season.—On the coast of Whitstable, Kent, I have taken the following species, amongst others:—*Polistichus vittatus*, *Pogonus luridipennis* and *littoralis*, *Bembidium scutellare* and *ephippium*, *Pterostichus inæqualis*, *Dichirostichus obsoletus*, *Anisodactylus pæciloides*, *Bryaxis simplex*, *Trogophlæus tenellus*, *Corticaria curta*, *Coccinella labilis*, *Heterothops binotatus*, *Philonthus procerulus*, *Staphylinus stercorarius*, *Ochthebius marinus*, *margipellens*, *bicolor*, *æreus* and *pygmæus*, *Berosus æriceps*, *Agabus conspersus* (common), *Hydrobius oblongus* and *bicolor*, *Donacia menyanthidis* and *nigra*, *Erirhinus festuæ*, *Bagous tempestivus* and *Silpha opaca*.

In the neighbourhood of Croydon:—*Acidota cruentata* (in a sand pit at Shirley), *Harpalus cordatus* and *punctatulus*, *Amara rufocincta*, *Panagæus 4-pustulatus*, *Licinus depressus* and *Byrrhus Dennii*; and on the chalk-downs near Henley, *Salpingus castaneus*, *Cryphalus abietis*, *Tomicus micrographus*, *Ilyobates forticornis*, *Sibynes primitus*, *Scaphidema metallica*, *Balaninus rubidus*, *Miarus campanulæ*, *Thyamis atriceps*, *Agathidium convexum*, *Cæliodes ruber* and *rubicundus*, *Smicronyx cicur*, *Homalota mortuorum*, *atomaria*, *testaceipes* and *pagana*, and *Clerus formicarius*.

In the neighbourhood of Dartford, Greenhithe, and Darenth Wood:—*Læmophlæus clematidis*, *Hypulus quercinus*, *Trachys minutus*, *Xylophilus populneus*, *Acalles roboris* and *Scymnus minimus*.

At Mickleham, Box Hill, and Buckland:—*Colon Zebei* (one specimen, ♂) and *brunneum*, *Thalycra sericea*, *Trichonyx Mærkeli*, *Hydnobius strigosus* and *punctatus*, *Thiasophila inquilina*, *Eros minutus*, *Cryptocephalus nitidulus*, *Hyperaspis reppensis*, *Læmophlæus ferrugineus*, *Goniocœna pallida* (beaten off hazel), *Malthodes fibulatus*, *dispar* and *atomus*, *Crepidodera atropæ*, *Ceuthorhynchideus quercicola* (Wat. Cat.) and *punctiger*, *Scydmanus angulatus*, *denticornis*, *pumilio* and *elongatulus*, *Antherophagus silaceus*, *Mordellistena lateralis*, *Psylliodes dulcamaræ*, *Xyloterus domesticus* and *Aspidophorus orbiculatus*.

In July, I spent three days in the New Forest, and, though too late to get many desiderata, took the following species, amongst others:—*Microrhagus pygmæus*

(2, swept off fern), *Strangalia aurulenta* (dug out of rotten tree stumps), *Colon viennense* (1, ♀), *Tomoxia biguttata*, *Tychius 5-punctatus*, *Cryptarcha imperialis* and *strigata*, *Bagous frit*, *Cryphalus fagi*, *Orchesia undulata*, *Epuræa 10-guttata*, *Anthonomus Chevrolatii*, *Haploglossa pulla*, *Tiresias serra*, *Homalota autumnalis* (at sap), *Haliplus variegatus*, *Hydræna testacea* (common) and *Ischnoglossa corticina*.

I have also taken *Stenus major* at Morden, and a single specimen of *Leptinus testaceus* in a nest of *Formica fuliginosa* at Tilgate Forest.—G. C. CHAMPION, 274, Walworth Road, London, S.

Captures of Hemiptera-Heteroptera during 1869.—Near Whitstable, Kent, *Henestaris laticeps* and *Agramma leta*; near Croydon, *Sehirus dubius* and *Zicrona cærulea* (abundant); and at the New Forest, *Orthostira concinna*, *Lopus gothicus* and *Eysarcoris æneus*.—ID.

Note on the young larva of Colias Hyale.—On August 13th, 1868, Mr. A. H. Jones most kindly sent me more than 20 eggs, which he had obtained from a captured female; and although I failed with the larvæ, yet I think my experience may be of benefit to anyone who may have the same luck another time.

The larvæ were hatched August 17th to 20th, first ate their egg-shells, and then settled on *Medicago lupulina*, in preference to *Lotus corniculatus*, *Trifolium repens* and *pratense*, with all of which I supplied them; they grew slowly, dying off one by one, till the three or four survivors were about $\frac{1}{2}$ inch long, at which size they hybernated, but never began to feed again in spring, and so perished in February and March, 1869. Perhaps the right way would have been to have kept them in a greenhouse, and fed them up rapidly without hybernation.

The egg is of a long fusiform shape, one end conical, the other knobbed, or like a bag tied round the neck; the shell delicate and glistening, ribbed longitudinally, and with very slight transverse reticulations: the colour at first a pale straw, changing to rich apricot or salmon colour, and lastly blackish. The newly-hatched larva is of a very pale olive, freckled with brownish; head as wide as the body, and blackish; on each segment a transverse row of clubbed pellucid bristles. After a moult it becomes pale yellowish-green; and after another, a full green. And from this time to their early and lamented death, my larvæ remained as follows:—Length about $\frac{1}{2}$ inch, stout, cylindrical, uniform in bulk: head narrower than second segment. Colour a dull full green, head slightly tinged with brown, a whitish spiracular line; the whole skin covered closely with short black spines or bristles.—J. HELLINS, Exeter, December 14th, 1869.

Description of the larva of Hydrelia unca.—I am indebted to Mr. Carrington for eggs of this species. They were laid on June 23rd and 24th, 1868, and received by me June 28th. The egg is soft-looking, rather irregularly shaped, but still of the usual echinus-like outline, with nearly 40 very shallow and irregular ribs, connected by irregular transverse reticulations, and in colour a full yellow; in fact, it looks like a little speck of butter.

On June 29th, the eggs became dark grey, and on 30th the larvæ came forth; by July 17th, they were about $\frac{1}{2}$ -inch in length, by the 28th, $\frac{3}{4}$ -inch, and by the first week of August, full-grown.

They fed well on *Carex sylvatica*; when at rest, stretched out flat along the blades of their food; looping in walking, and jumping about angrily when touched.

The newly-hatched larva is a little greenish looper, with the usual dots showing brown, and emitting bristles. As it grows, it becomes more and more of a full green after every moult. When it is full-grown, the length is quite an inch, the figure slender, cylindrical, uniform throughout in bulk, save that the 3rd segment seems a trifle swollen, and the last three segments taper slightly to the anal flap, which is bluntly rounded off, or almost squared off; the head is hard and globular, about as wide as the second segment; there are two pairs of ventral legs fully developed and useable, and the rudiments of another pair, useless.

The colour is a full velvety-green, with a pulsating dorsal vessel of a darker tint; there is a fine whitish-green sub-dorsal line, and a rather broader spiracular line of very pale yellow; the spiracles are indistinctly brownish, and the hinder segments paler than the rest of the back; the belly is also paler, but still of a soft rich green; the head somewhat yellowish-green.

The larva retired under ground for pupation.—Id.

Description of the larva of Thanaos Tages.—On the 28th of May, 1868, I happened to meet with this species on the wing in a thicket, and brought home with me three specimens alive; and luckily having a plant of *Lotus corniculatus* potted, I covered it with a glass cylinder and placed them therein.

After a few days, I saw that two of the butterflies were dead, whilst the third still looked lively, and fortunately proving to be an impregnated female, she deposited on the leaflets of the plant a few pale greenish pellucid eggs, of a somewhat elliptical figure standing on end.

About the middle of June I noticed the egg shells were empty, but I could not see the young larvæ either then, or for some time subsequently, until June 28th, when at last I detected them, three in number; they had been all the while feeding in little caves, formed by drawing together three leaflets with silken threads, and it was the glistening of these threads in the sun that first caught my eye. Each cave was formed by the two outer leaflets being drawn almost close together (leaving space enough for the ejection of frass), and the middle one being bent over them like a curved roof; all this was managed quite naturally, so that the cave passed easily for a leaf not quite expanded.

Some of these caves had already served their turn and been abandoned for newer ones, and it appeared that the larvæ had been feeding on the inner surface of the leaflets; in others I was able with the help of a lens to detect through the interstices somewhat of the fat form of their tenants.

On the 30th of June I turned one out for figuring; it was then nearly three-eighths of an inch long, with a prominent dark purplish-brown head covered with minute pale greenish points; the body rounded above, a little flattened underneath, plump, and tapering a little at each end; the second segment much smaller than the third, especially in the part just behind the head; the colour of the body a pale rather bluish-green, somewhat paler still on the sides and belly; a distinct dorsal line of darker green, a sub-dorsal line faintly paler than the ground colour; the whole surface of back and sides irrorated or shagreened with exceedingly minute greenish-white points.

These most interesting little fellows continued to feed and grow, and as they began now to eat away the whole thickness of the leaflets forming their caves, their ravages exposed their bodies to the light, and as soon as this happened they moved off to new habitations; this change of residence always took place at night, though from the slow and deliberate pace at which they moved, it could hardly be called a "fitting."

Throughout July these larvæ consumed a great quantity of food, so that I had frequently to renew my plant of *Lotus*, but still they hid themselves, and kept quiet so persistently, that I no longer wondered how it was that no one had ever found this common species for me, even though its food-plant was known.

After various moultings, I secured three more figures of them at intervals, and by July 31st, they had attained their full growth. At this time the larva is nearly three-quarters of an inch in length, with the back a little arched and the belly rather flattened, being just of the same form as when younger; the body very plump, and thickest in the middle segments, the segmental folds distinct, each segment also sub-divided into five portions, the broadest one in front; the head is somewhat heart-shaped, and flattened on the face: the colour of the body is rather more of a yellowish-green than before, the minute raised points blackish, the dorsal line a darker green, and the sub-dorsal paler stripe delicately edged above and below with a fine faintly darker line; the anterior pair of tubercular dots just perceptible on each segment, but only with a strong lens; the spiracular region forming a slight ridge of paler whitish-green, the spiracles very small and red in colour: the head is purplish-brown as before, but with the addition of an ochreous streak from the crown down the front of each lobe, united below by another broad transverse streak at some distance above the mouth, and also of a spot of the same colour on each cheek.

Having sent one to Mr. Hellins, I found my two remaining larvæ had, early in August, fairly left their hiding places, and were ascending the sides of the cylinder, first one and afterwards the other; presently, having gained a footing on the green lino cover at the top, they began to spin threads of silk and to pucker up the lino into a fusiform shape; the foundation threads were very strong and thick, spun parallel to each other, in a little transverse series at each end of the retreat: the larva that was on the lino first contrived to complete its hybernaculum; but the other, after spinning the two bundles of parallel threads to form the two ends of its intended winter quarters, was unable to find the lino slack enough for puckering into the required shape, and began again the next day at another part, but was again defeated, and finally relinquished its attempt on the lino, and went below amongst the plants; and some weeks afterwards I found it on the earth killed by mildew; the same fate befel the one which I sent to Mr. Hellins.

The other slumbered safely through the winter, until early in April, 1869, a ray of sunshine reached it, and I saw the larva coming out as though in distress, to escape either the warmth or the strong light; whereupon I shifted the glass to a pot containing a violet plant, and the larva crawled down the sides till it found the violet leaves, and then selecting two near the bottom in a shady position, in an hour it had spun a retreat between them as they lay horizontally one below the other; but I suppose this operation exhausted its strength, for when, after waiting in vain for the butterfly to appear at the proper time, I pulled the leaves asunder, I found it had died without having become a pupa.—WM. BUCKLER, Emsworth, *January, 1870.*

Description of the larva of Epunda lutulenta.—On the 8th October, 1868, Mr. Henry Terry, of St. Marychurch, captured a ♀ of this species, and having induced her to deposit her eggs in captivity, he kindly sent me a portion of them, retaining some for himself, and sending others to the Rev. E. Horton.

The egg of *lutulenta* is circular, a little depressed at top, and flattened beneath, ribbed and beaded; when first laid it is of a canary yellow, and changes in a few days to a pale pinkish grey-brown, having the top and a broad zone round the middle of the sides of a much darker tint of the same: in about a month it changes to a purplish grey tint, and just before hatching assumes the bloom-like appearance of a purple grape.

The last change was simultaneously assumed by all the eggs in my possession on November the 22nd, that is about six weeks after they had been laid, but from some reason or other unknown to me, no more than two larvæ were hatched out; my friends, as will be seen below, were more fortunate.

The young larvæ at first has a very dark purplish-brown head, the body pale dirty greenish and translucent, the internal organs showing through the skin give the appearance of a broad dark grey stripe down the back; there is a dark brown plate on the second and on the anal segments; the tubercular dots distinct, and blackish, each having a rather long dark brown hair.

My young larvæ fed freely on *Poa annua*, but, the grass becoming infected with mildew, they both suddenly died on the 14th January, 1869. I am, however, able to carry on their history, Mr. Terry having kindly forwarded me some of his batch on February 20th; these were then three-eighths of an inch long, of a full green on the back and sides, the ventral surface rather paler; the most noticeable feature at that time was the sub-spiracular stripe being whitish or greenish-white in some, yellowish or of a pale flesh tint in others; and by aid of a lens one could see that the dorsal line was of the ground colour, finely outlined with darker green, and the sub-dorsal paler green also outlined with darker; also that the ground colour of the back was delicately freckled over with darker green, an unfreckled plate of green on the second segment, and the head both paler.

These individuals fed tolerably well for some days on mixed grasses sown in a pot, and they varied their food a little by feeding on some of a miscellaneous collection of plants that had sprung up with the grass, especially on *Potentilla fragrariastrum*, leaving chickweed and trefoil almost untouched; however, they had never seemed healthy since their arrival, and they soon began to die off, the longest-lived going about the middle of March.

Soon after this, I became aware that the Rev. E. Horton had been more successful, and though his stock of young larvæ kept out of doors during the winter had been a temptation to robins as choice morsels of food not to be resisted, yet there remained one solitary individual uneaten, which he most kindly entrusted to my care, and on May 8th, I had the satisfaction of figuring it.

This larva was then one inch one-eighth in length, and moderately stout, of the usual *Noctua* form, its colour a bright yellowish-green, finely freckled with paler green, the segmental folds showing yellow; the dorsal stripe of darker green, the sub-dorsal stripe of very pale rather dull yellowish-green; the spiracles whitish placed on a thin dingy red line, and close beneath them a rather broad stripe tapering at each end of greenish ochreous, edged above and below with whitish

(the whitish edgings of this stripe appear to me to be the most distinctive mark of the species); the ventral surface and legs of the same colour as the back.

On the 19th of May, Mr. H. Terry succeeded in finding a nearly full-grown larva on grass in its native haunts, and subsequently two or three others on flowers of wild mint, and the leaves of *Scabiosa arvensis*, these he also forwarded to me: they were then an inch and a-half in length, rather darker and less brilliant in colour than the one reared by Mr. Horton, but otherwise similar, even in the details, with the exception that the spiracles were pinkish flesh colour, delicately edged with black, and each situated in a purplish-red crescentic blotch; the plate on the second segment slightly tinged with the same colour, and in the middle of the sub-spiracular stripe there was a streak of dull pink beneath each spiracle.

On June 19th, I received another larva from Dr. F. Buchanan White, who had found it feeding on heather in Inverness-shire; this would not touch grass, but fed up on heather within a few days after I had it.

This larva was of the same form and character as the foregoing, though the ground colour was a rather bright olive-green, and the dorsal stripe becoming suddenly blackish on the fifth segment continues so to the twelfth, being intensely black just at the beginning of each of these segments; on each of the same segments there was a black streak anteriorly on the upper edge of the sub-dorsal stripe, there was also a fine black spiracular line interrupted only by the spiracles themselves, and at the segmental divisions.

Although, as I said, this last-named Scottish larva refused grass, yet from what I could see of the others, I am of opinion that this species is a veritable grass feeder, probably eating grass all through any mild weather that may occur in winter, and in spring probably attacking any low plants that may suit its taste. It seems also that the larvæ invariably both feed and rest on the blades of grass with their heads downwards.—Id.

Notes on Lepidoptera observed at light at Norwich.—After living for years in a country place out of the reach of gas, I looked forward with sanguine anticipations to the opportunity of collecting afforded by the lamps round the outskirts of this city. But it must be confessed that, thanks to the very unfavourable season for insects, hard and constant work has given but meagre results; of the few good species, most having occurred only singly.

Last October and November (being the end of a good season), I found *Nonagria lutos*a and a few *Petasia cassinea*, while *Diloba cæruleocephala*, *Cidaria miata*, and a few other species swarmed. This season I have found *Porthesia chrysorrhæa* (singly!) *Cerura bifida*, *Ennomos erosaria* and *fuscantaria*, *Acidalia promutata* (in plenty), *Eupithecia subfulvata*, *assimilata*, and *fraxinata*, *Scotosia certata*, *Phibalapteryx lignata*, *Pelurga comitata*, *Luperina cespitis*, and a singularly pale form of *Dianthæcia carpophaga*: a most scanty list for the amount of time and labour bestowed.

Among the smaller insects, the *Crambites* were well represented as to species, though individuals were scarce. Among them were *Schænobius forficellus*, *Homæosoma nimbella* and *nebulella*, *Phycis abietella*, *Rhodophæa formosella*, *advenella*, *marmorea*, and *suavella*. Of *Tortrices* and *Tineina*, I observed an unusual number

of species, and even a few plumes; the common ones, *Pterophorus pterodactylus*, *pentadactylus*, *ochrodactylus*, and *Alucita polydactyla*, occurring occasionally, and once a worn specimen which agrees with nothing so well as *Lienigianus*.

Spilonota roborana, *Orthotænia striana*, and *Eupœcilia atricapitana* were actually common at the lamps, and specimens occurred of *Catoptria expallidana*, *Sciaphila alternana*, *Sericoris decrepitana*, *Halonota fœneana*, *Peronea aspersana*, *Retinea Buoliana*, and at least a dozen more *Tortrices*, mostly common; while of *Tineina*, I found *Tinea semifulvella*, *Enicostoma lobella*, *Depressaria chærophylli* and *subpropinquella*, *Gelechia rufescens*, *leucatella* and *domestica*, *Ecophora lunaris* and *Coleophora lineolea*; and, seeing that many of these were found repeatedly, and in a lively, not to say excited, state, it seems reasonable to credit them with a greater amount of activity at night, than we have usually been in the habit of doing.—CHAS. G. BARRETT, Norwich, 16th November, 1869.

On some Lepidoptera found on the chalk near Norwich.—The chalk formation which underlies this city and neighbourhood, at no great depth, finds its way to the surface in a valley about two miles away; and it is curious to observe the number of species of *Lepidoptera* to be found on this spot, but almost or quite absent from the surrounding country.

One of the most interesting of these is *Homœosoma nebulella*, which is rather common among the rough herbage, and may be found at dusk on the blossoms of ragwort and musk-thistle. It may also be trodden up from patches of *Anthemis cotula*, though what attractions there may be in this plant does not appear.

In the chalk-pits, *Argyrolepis subbaumanniana* is common, and so different, when alive, from *Baummanniana*, that it seems impossible to doubt its distinctness as a species; indeed, when at liberty, it looks as much like *Chrosis tesserana*, and has similar habits.

In the same old pits, *Cochylis stramineana* is plentiful, and *Pterophorus plagiodyctylus*, *Elachista triatomea*, *Opostega salaciella*, and *Bucculatrix cristatella* occur, also, very rarely, *Nemotois scabiosellus*.

Along the neighbouring hedges and banks may be found *Catoptria æmulana* (rarely), *Phtheochroa rugosana*, *Endopisa Germarana*, *Dicrocampha simpliciana*, *Semasia janthinana*, and *Stephensia Brunnichella*; and, on the trunks of some pollard ash trees, in a lane, *Eudorea lineolea*, *Depressaria granuloseella*, and *Gelechia maculiferella*.

Some few of these species are to be found in hedges for a considerable distance, but the majority appear confined to the chalk.

On the other hand, many chalk insects, such as *Eubolia bipunctaria*, *Melanippe rivata* and *procollata*, and *Gracilaria semifascia*, seem altogether absent.—ID.

Early appearance of Eupithecia albipunctata.—A very fine specimen of this species made its appearance in my breeding cage on New Year's Day. The room in which I had the pupa is very cold, and much exposed.—C. CAMPBELL, 14, Blackburn Street, Hulme, Manchester, February 12th, 1870.

Lythria purpuraria, near York.—I have two old specimens of this rare insect, taken in Stockton Forest, four miles from here, by Henry Baines. These are set with short household pins; were taken at the same place, and by the same captor as my old *Acidalia rubricata*, which species has since been taken in the same locality.—T. H. ALLIS, Osbaldwick, near York, *February*, 1870.

Note on Cidaria reticulata.—I wish to call attention to a distinct character of the male, I allude to the large round yellow spot on the under wings, which shows both above and below. I have not seen any notice of this in English works.—ID.

Depraved appetite in Lepidopterous larvæ.—I have made a note of two cases of depraved appetite in Lepidopterous larvæ during the past season.

The first is that of a larva of *Agrotis saucia*, which, though furnished with green food, ate a portion of the dead and dried body of a larva of *Agrotis ripæ*; and the other is that of a larva of *Eupithecia expallidata*, which I watched devouring one of those claret—or mulberry—coloured aphides, that infest the *Solidago virgaurea*.—J. HELLINS, Exeter, 12th *January*, 1870.

The sexes of Coniopteryx psociformis.—With reference to the supposition that *C. psociformis* and *C. aleyrodiformis* may be only the sexes of one species, as noted in my Monograph of British *Planipennia* (Tr. Ent. Soc. 1868, p. 193), I may remark that Mr. B. Cooke recently submitted to me two examples of *psociformis* which appeared to be decidedly ♂ and ♀. They were quite similar in general form, both with small hind-wings; but that which I consider the ♀ was smaller than the other, and with the abdomen swollen and elongated, apparently full of eggs.—ROBERT McLACHLAN, Lewisham, *February*, 1870.

British Lepidopterists as viewed by a German.—Some years since, when I was in London, I called on a dealer in High Holborn, and, looking through his stores, saw, among others, a *Castnia* that suited me. It was the, as yet, rare *papilionaris*, Walker. He demanded sixpence for the specimen, which was somewhat worn, yet quite fit for the Cabinet. I could not do better than buy it at so cheap a price. When I had looked over the exotics and picked out something more, he shewed some European species. There I found a very beautiful *Luperina Haworthii*. More from curiosity than from a desire to buy, I asked the price. "One pound" was the answer. I replied that, considering the low price of the exotics, he perhaps meant "one penny." "Oh! no, no, Sir. One pound: that's a British insect." He had scarcely spoken, when in came a British Collector who admired this "fine species," and without more to do, because this was a British-born specimen, bought it for one pound. As a German insect, this *Noctua* would only have cost a few pence, but as a pure-blooded Briton it was worth one pound. "*O sancta simplicitas!*" murmured I, and went my way.—PETER MAASSEN, of Elberfeld [in the "*Stettiner Entomologische Zeitung*," 1870, p. 58, note].

[The insect noticed is *Cœlena Haworthii* of our lists. We would not for a moment accuse Herr Maassen of having invented a ridiculous statement for the purpose of throwing up in stronger relief the self-isolating tendencies of many of

our Lepidopterists, but conclude that he made some great mistake as to the species. No British entomologist, in his right senses, would give "one pound" for this insect, of which a specimen, British or otherwise, is not worth more, at the highest, than eighteen-pence. The moral to be drawn from the anecdote is evident.—Eds.]

Review.

"FAUNE GALLO RHENANE," Coléopterès, Tome 1^{er}, 2^{me} Livraison; by Albert Fauvel, Caen, 1869.

The prefatal chapters of this work, completing the 1st vol., and extending to 282 pages, accompanied by 4 exceedingly well executed plates, are now published; and of themselves form a satisfactory introduction to the study of European *Coleoptera*. The present livraison treats of metamorphoses, external anatomy and habits (with an elaborate terminological list); and also enters at some length upon "species" and "varieties," sexual and other differences in structure, &c., the laws of nomenclature, and the different schemes of classification. To these is added a supplementary list of contemporary coleopterists of the district to which the work refers, viz., France, Belgium, Holland, Luxemburgh, Rhenish Prussia, Nassau, and the district of the Valais. This introductory portion (though, of course, affording no idea of the way in which the body of the work is to be treated) can be read with interest by the general student, and can hardly fail to be instructive to the young British Coleopterist, abounding as it does both in original observations and in well-known facts put in an agreeable way. The remarks upon the foundation, &c., of *species* (in the usual entomological sense) are particularly commendable. Amongst them is the suggestion that there should be an annual or biennial committee of well known Coleopterists (to be held at Paris), to whom all unique, new, remarkable or doubtful species should be submitted, with a view to the furtherance of knowledge and consequent reduction of synonymy. A typographical error makes M. Fauvel term this committee an "*aeropage*" (instead of "*areopage*"): it is to be hoped that this is not an augury that the proposed assembly is likely to remain "*in nubibus*."

M. Fauvel notes that only three species of our *Brachelytra* (which he under-rates at 700), viz., *Stenus exiguus*, Er., and *Oxyypoda rupicola* and *Homalium rugulipenne*, Rye, are peculiar to Britain; but this does not, of course, include certain of Dr. Sharp's new species of *Homalota*. He also remarks that Stephens' *Tachyporus* var. *nitidicollis* of *obtusus* is the only really indigenous *race* we possess in that group. His general observations lead to the impression that many changes of nomenclature will be made by him, and that he intends to collocate allied insects which have hitherto chiefly relied for specific distinction on the character of having or wanting wings, added to the usual modifications of structure attending those conditions.

ENTOMOLOGICAL SOCIETY OF LONDON, *January 24th*, 1870 (Anniversary Meeting).
—F. SMITH, Esq., Vice-President, in the Chair.

The Ballot for the Council and Officers for the present year took place, when Messrs. H. W. Bates, Dallas, Dunning, Fry, Grut, McLachlan, Parry, Pascoe,

Salvin, E. Saunders, A. R. Wallace, and Wormald, were elected Members of Council; and Mr. A. R. Wallace (President), Mr. S. Stevens (Treasurer), Messrs. J. W. Dunning and R. McLachlan (Secretaries), and Mr. E. W. Janson (Librarian), as Officers. Mr. Dunning read the report of the Council and (in the absence of Mr. Bates) the President's Address. The proceedings terminated with the usual vote of thanks to the outgoing Council and Officers.

February 7th, 1870.—A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

It was announced that the Council offered two Prizes of the value of Five Guineas each to authors (whether members of the Society or not) of Essays or Memoirs, of sufficient merit, and drawn up from personal observation, on the anatomy or oeconomy of any insect, or group of insects—the Essays to be sent in before the end of November, 1870.

Mr. Bond exhibited four examples of *Satyrus Semele* in which the colours peculiar to each sex were combined, although the individuals were essentially either male or female.

Professor Westwood exhibited drawings of *Anthocaris cardamines*, *Lycæna Adonis*, &c., presenting parallel peculiarities to those exhibited by Mr. Bond.

Mr. Bond also exhibited various cocoons of *Bombyx Yama-Mai* and *B. Pernyi* from various countries (on behalf of Dr. Wallace).

Mr. Stainton exhibited a box of Continental *Micro-Lepidoptera*, of which each example was carefully labelled with respect to locality, date, food-plant (if bred), &c., this being the plan he adopted throughout his collection; and he suggested it was the only perfect plan, inasmuch as numbers referring to a register, though of equal value while a collection was intact, were comparatively useless if it were dispersed.

Mr. Bond exhibited more examples of *Acridium peregrinum* from Plymouth (not Falmouth as recorded in our last).

Mr. Smith exhibited specimens of *L. migratoria* from Scotland, and remarked on the differences between them and *L. Christii*.

Mr. Janson exhibited (for Mr. Crotch) *Philonthus cicatricosus* of Erichson, new to this country, taken by Mr. Moncreaff at Portsea; also *Dyschirius angustatus*, *Hydroporus unistriatus*, and *H. minutissimus*, all rare or local British species.

Major Parry read the concluding part of his paper intituled "A revised Catalogue of the Lucanoid Coleoptera, with descriptions of new species, &c.;" and exhibited a specimen of *Nicagus obscurus*, a species of doubtful location.

The Secretary communicated some notes by Mr. Trimen on the habits of species of *Paussidæ* at the Cape of Good Hope.

Mr. Butler read notes on the species of *Charaxes* of the Reise der Novara, with descriptions of new species.

Mr. McLachlan placed before the meeting the MS. of the first part of the Catalogue of British Insects proposed to be published by the Society. This part comprised the *Neuroptera* in the Linnean sense (consisting of *Psocidæ*, *Perlidæ*, *Ephemeridæ*, *Odonata*, *Planipennia*, and *Trichoptera*), and numbered, in all, about 323 species. The *Ephemeridæ* had been furnished by the Rev. A. E. Eaton; the *Odonata* were compiled from the works of De Selys & Hagen; the others (with the exception of the *Perlidæ*, which were in a very imperfect condition) from Mr. McLachlan's various Monographs, with additions and corrections.

BRITISH HEMIPTERA: ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS AND JOHN SCOTT.

GEODROMICA.

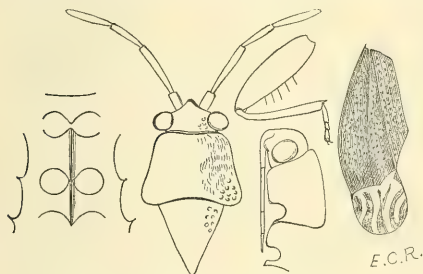
Section 5.—LYGÆINA.

FAMILY I.—RHYPAROCHROMIDÆ.

STETHOTROPIS (Fieb.), *n. g.*

Short, broad, oval, stout.

Head transverse, short, pentagonal; *crown* (including the eyes) wider than the front of the pronotum, rather convex; *face* very short, sides slightly curved inwards, apex obtuse. *Eyes* rounded, projecting laterally. *Antennæ* slender, 1st joint stout, reaching beyond the end of the face, 2nd slender, slightly clavate, $2\frac{1}{2}$ times longer than the 1st; 3rd more slender and less clavate, about two-thirds the length

Details of *Stethotropis incana*, D. & S.

of the 2nd; 4th thicker than the 2nd, about the same length as the 3rd, fusiform. *Rostrum* slender, reaching to the posterior coxæ, 1st joint as long as the head, 2nd nearly twice as long, 3rd about as long as the 1st, 4th rather shorter.

Thorax: *pronotum* long-trapezoidal, moderately convex, anteriorly contracted to the width of the head but immediately widened and the anterior angles rounded off; anterior margin slightly concave; sides nearly straight, very slightly sinuate, the margin at first very narrowly reflexed, then gradually thickened and forming a small callus at the posterior angles which are thus obtuse; posterior margin, within the callosities, slightly emarginate. *Scutellum* long, triangular, slightly convex, sides depressed, apex acute. *Elytra*: —*clavus* long, narrow, sides parallel; *corium* wide, curved outwards, anterior margin not reflexed, the outer nerve incrassated and prominent on the basal half, its posterior course on the disc also considerably raised; *membrane* short, sub-quadrate, posterior angles subequally rounded, base depressed; of the four nerves the 1st is short and curved outwards, the 2nd, arising near the middle of the base, is nearly straight, slightly curved at the base; the 3rd, arising at the inner angle, curves

towards the 2nd and then slightly towards the inner margin; the 4th arises near the middle of the inner margin and curves parallel to the 3rd. *Sternum*, each segment with a triangular *xyphus*; *meso-* and *metasternum* with a central keel, the *xyphus* depressed. *Legs* moderate; *thighs*, 1st pair incrassated, simple, long-fusiform; *tarsi*, 1st pair short, 1st and 3rd joints sub-equal in length; 2nd very short; 3rd pair longest, 1st joint longer than the 2nd and 3rd together, 2nd very short.

Abdomen: *connexivum* wide, sharply reflexed.

Species 1.—*STETHOTROPIS INCANA* (Doug. & Scott), *n. sp.*

Black. *Head* and *pronotum* clothed with dense ashy pubescence; *elytra* dark shaded brown, base and nerves of *membrane* yellowish-white.

Head appears ashy by reason of the dense decumbent pubescence, *antennæ* black with fine projecting hairs, apex of 1st, 2nd, and 3rd joints piceous.

Thorax: *pronotum* covered like the head with dense, appressed, ashy pubescence, closely but distinctly deep-punctured, the callosities smooth. *Scutellum* less pubescent, with fine, less distinct punctures. *Elytra* dull, dark brown; *clavus* on the basal half with three rows of distinct punctures, posteriorly the punctures less distinct; *corium* in the inner margin, posteriorly, a longitudinal blackish streak, the raised course of the 1st nerve is also dark, the colour spreading posteriorly and outwardly into a blotch which extends narrowly on to the base of the membrane: *membrane* fuscous, the base (except as above stated) yellowish-white on the outer two-thirds, on the inner 3rd broadly clear, spotlike, with a blackish streak from the *corium* beyond the base of the 3rd nerve; nerves clear yellowish-white, and a streak of the same colour, sometimes interrupted, between the 1st and 2nd, and 2nd and 3rd. *Legs*: *thighs* pitchy-black, *tibiæ* pale piceous, *tarsi* pale piceous, the last joint black.

Abdomen: beneath clothed with fine, decumbent ashy pile.

Length $1\frac{1}{2}$ line.

A single individual, ♀, was taken by Mr. T. V. Wollaston, last summer, at Teignmouth, and kindly presented to us. Dr. Fieber has founded on it a new genus and has sent a drawing of the characters, from which our figure is taken. Its place is near *Stygnocoris*.

Section 9.—CAPSINA.

FAMILY II.—ONCOTYLIDÆ.

Genus 7.—CONOSTETHUS, *Fieb.*

Species 2.—*CONOSTETHUS GRISEUS*, *n. sp.*

♂ Dark greyish-green.

Head yellow, somewhat darker on the sides and leaving an indistinct central line;

at the base of the head, and near to each eye, a small brown spot. *Antennæ* black, 1st joint at the base greenish; 4th joint, apex brownish-green, *Eyes* purplish-brown. *Rostrum* greenish or yellowish, last joint black.

Thorax: *pronotum*—sides and a central line yellow; callosities brownish-yellow minutely spotted with brown, their posterior margin brown. *Scutellum* dark greyish-green, anterior portion and a central line yellow, the former darker than the latter, transverse channel brown, interrupted by the central line. *Elytra* dark greyish-green; *clavus*—inner margin narrowly black; *corium*—anterior margin as far as the 1st nerve yellow, the colour softened down and blended with the prevailing colour as they approach each other; *cuneus* yellow; *membrane* blackish, slightly iridescent, lesser cell white; cell nerves yellow, outer nerve of the large cell darker, between the apex of the cuneus and lesser cell nerve and the apex of the anterior margin is enclosed a pale triangular patch, margined with black at its lower extremity. *Sternum* greenish; *mesosternum* with a broad dark greyish-green streak on each side of the centre. *Legs* greenish: *thighs* next the apex with a short row of minute brown spots on the upper and under-sides, those on the 3rd pair placed diagonally towards the base; *tibiæ* brownish-green or yellow with erect, somewhat spinose, black hairs; *tarsi* brown, 3rd joint, except the base, and claws, black.

Abdomen: upper-side black or brown-black; under-side green; *connexivum* yellow.

♀ slightly paler than the ♂.

Head: *antennæ* yellowish or brownish-yellow; 2nd joint brown; 3rd and 4th black, basal half of the 3rd dark brown, apex of the 4th brownish-green. *Elytra* scarcely so long as the abdomen. *Membrane* abbreviated; cell nerves yellow. All the other characters as in the ♂. Length 2 lines.

In the appendix to the “*Europäischen Hemiptera*,” p. 394, Fieber describes an insect as a variety of *Conostethus roseus*, Fall., to which the present bears a great resemblance in many respects, but its stature (nearly one-third larger), rounder head, and different colour of the elytra (the two former characters not referred to by Fieber) render it very conspicuous when placed alongside *C. roseus*.

Taken in some numbers by Dr. Power below Gravesend on and underneath *Arenaria maritima*, in June last.

AQUATILIA.

Section 5.—CORIXINA.

FAMILY I.—CORIXIDÆ.

Genus 1.—CORIXA, Geoffr.

CORIXA SOCIA, n. sp.

Brown-black, with very fine yellowish lines and markings. *Pronotum*, *clavus* and *corium* delicately rastrate. *Pronotum* with 7—9

lines, mostly entire; *clavus* with the first five or six lines straight and parallel; *corium* with short irregular, delicate lines. *Palæ*, ♂, twisted, roundly dilated on the upper side anteriorly; 1st joint of the posterior *tarsi* with a large, sub-trapezoidal, posterior, black spot.

Head: above pale piceous, posterior margin black-brown with a very slightly angular medial prominence; on the crown, posteriorly, two very short, fine, punctate, longitudinal striæ, not extending quite to the base. *Face* pale yellow; facial depression in ♂, deep, oval, extending forwards nearly to the middle of the eyes.

Thorax: *pronotum* rounded behind, anteriorly without a carinate elevation, with 7—9 fine, close, indistinct, slightly undulating, dark yellowish, transverse lines, mostly entire, but sometimes shortened and confluent. *Elytra*: *clavus* with fine, dark yellowish, transverse lines, the first six or seven straight, parallel, then two shortened inwardly, and the remainder less regular, shorter, and often turned down at the inner end; *corium* with very fine, irregular, short, faintly jagged, transverse yellowish lines, the posterior inner angle nearly clear of markings; membrane-suture broad, clear yellowish, the colour extending round the apex, as a line, on to the marginal channel which is dark livid, in certain lights pale inwardly; *membrane* with fine, irregular, sub-angularly twisted yellowish markings, sparse in the middle, the entire margin black. *Sternum* black; *scapule* pale yellow; *pleuræ* black on the base, the posterior half, and a line on the margin of the basal half, pale yellow; *parapleuræ* pale yellow. *Legs* pale yellow,—1st pair, *coxæ* outwardly black, apex yellowish; *thighs*, at the base, exteriorly with a blackish spot, extending upwards; *tibiæ* arcuate, black above, apex yellowish; *palæ*, ♂, the lower margin nearly straight, the upper-side at first much constricted and flattened, then dilated and rounded, turned broadly inwards, and abruptly rounded to the apex, so that the upper surface exhibits a broad screw-form; the colour at first brown deepens to black on the dilated portion and is continued as a line almost to the apex: 2nd pair, *coxæ* black, apex yellowish; *thighs*, apical third, especially on the upper-side, fuscous; *tibiæ* pale fuscous; *tarsi* brown at the apex: 3rd pair, *coxæ* black, apex yellowish; *thighs* broadly black exteriorly, less so interiorly; *tarsi* with long, black cilia, 1st joint at the end with a large black spot extending quite across, sub-trapezoidal, the inner side being longer than the outer, and the upper margin sloping outwards; 2nd joint clear yellow with a very fine black line on the margins.

Abdomen black; *connexivum* pale yellow: beneath, in ♂, the basal segments black with the posterior margin and sides pale yellow; the last two or three segments dusky yellow; in the ♀ all the segments pale yellow. Length $2\frac{3}{4}$ —3 lines.

In the form of the *palæ*, ♂, like *O. præusta*, but differs from that species in being blacker, in the more delicate and shorter character of the lines on the *corium*, in the darker colour of the middle and posterior thighs, and in the sub-trapezoidal (not quadrate) shape of the black spot on the posterior *tarsi*.

A few specimens were taken last summer in the district of Strathglass, Inverness-shire, by Dr. F. Buchanan White.

EXCHANGES.

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- | | |
|----------------------------|-------------------------------|
| 1 <i>Euptychia Petra</i> . | 5 <i>Euptychia Jaresia</i> . |
| 2. " <i>Labè</i> . | 6. " <i>Muscosa</i> |
| 3. " <i>Gulnarè</i> . | 7. " <i>Oreba</i> . |
| 4. " <i>Maimounè</i> . | 8. <i>Nymphidium Lilina</i> . |

CORIXA BOLDI, *n. sp.*

♀. Black-brown with pale yellow markings. *Pronotum* with 7—8 very fine interrupted black lines. *Clavus* with long, zig-zag, *longitudinal* lines in the middle, and short transverse lines on the sides. *Corium* with short, twisted, transverse lines. Posterior *tarsi*: the 1st joint with a large, apical, black spot, semi-oval on its upper end.

Head brownish-yellow, fuscous at the base, with a short, punctate, longitudinal stria on each side of the slightly raised middle.

Thorax: *pronotum*, *clavus* and *corium* finely rastrate. *Pronotum* posteriorly rounded, anteriorly without a keel, transversely with 7—8 very fine, slightly impressed black lines, the intermediate yellow lines rather wider. *Elytra*: *clavus* with long, zig-zag, sharply angulated, *longitudinal*, yellow lines on the middle, broad at the base, the margins each with a series of short hieroglyphic marks, sometimes connected; on the posterior 4th these marks form irregular transverse lines: *corium* with short, twisted, angulated, somewhat oblique transverse lines, interrupted on the posterior inner angle by a longitudinal black streak, the angle itself, at the end of the clavus, with a black spot; marginal channel pale yellowish; membrane-suture narrow, dusky yellowish: *membrane* filled with hieroglyphic yellowish markings, interrupted near, and parallel to, the inner margin by a pale streak, exterior margin black, posterior margin fuscous. *Sternum* pale yellow. *Legs* pale yellow: 1st pair, *palæ*, ♀, cultrate, narrow, acute: 2nd pair, *tarsi* with a brown spot at the apex: 3rd pair, 1st joint with a large, apical, black spot reaching quite across the joint, the upper end of the spot semi-oval; 2nd joint with a delicate black margin; *cilia* black.

Abdomen above, black; sides and *connexivum* pale yellow; the last segment, within the posterior margin, with a brown line; under-side pale yellow.

Length 3 lines.

This species is at once distinguished by the longitudinal direction of the peculiar markings on the clavus. By the spot on the posterior tarsi it is related to *C. præusta*, but the form of the spot differs, being sub-oval, instead of quadrate.

Described from a single ♀, taken by Mr. T. J. Bold in August, at Gosforth, "in a lake into which a burn runs."

CORIXA SODALIS, *n. sp.*

Brown-black, with fine pale yellow markings. *Pronotum* with 8—9 very fine black lines. *Clavus*; the lines on the basal half straight or furcate; *corium* with irregular, interrupted, twisted lines. *Palæ*, ♂, anteriorly, on the upper-side, roundly dilated to the broad apex, outwardly, like the tibiæ, black: *tarsi*; 3rd pair, the 1st joint with a small triangular, apical, black spot.

Head piceous; facial depression in ♂, deep, extending forwards to the middle of the eyes.

Thorax: *pronotum*, *clavus* and *corium* delicately rastrate. *Pronotum* rounded behind; disc with 8—9 very narrow, impressed black lines, the intermediate yellow lines rather broader, the first three or four straight, the rest more or less curved downwards, frequently shortened in the middle and confluent. *Elytra*: *clavus* with fine, pale yellow, transverse lines; on the basal half six or seven parallel, mostly entire, but sometimes furcate at the ends, the first three or four slightly broader than the others; on the 2nd half irregular, broken, or angularly twisted: *corium* with delicate, irregular, much broken and angularly twisted, pale yellow, transverse lines, sparser on the posterior inner angle, leaving there a short, longitudinal black streak; membrane-suture narrow, clear pale yellow, marginal channel narrow, pale livid: *membrane* with minute hieroglyphic markings, the middle more or less free, the margins black. *Sternum* and side plates pale yellow. *Legs* yellowish: 1st pair, *tibiæ*, ♂, arcuate, the upper-side, except the apex, black; *palæ*, ♂, viewed from the side cultrate, the upper-side anteriorly, broadly arcuate, apex broad, flattened and curved inwards, outside black, but the colour not extended to the apex: ♀, cultrate, narrow; slightly curved, apex acute: 2nd pair; *thighs*, on the basal half, pale, the apical half infuscated, darker on the upper edge; *tibiæ* infuscated outwardly, *tarsi* yellowish with a black spot at the end: 3rd pair; *thighs* pale; *tibiæ* broadly black on the sides; *tarsi* yellow with black cilia, 1st joint with a short, triangular, apical, black spot on the inner side, its outer angle generally not extending quite to the black outer margin, but sometimes touching it; 2nd joint clear yellow with a delicate black margin.

Abdomen above, infuscated in the middle lengthwise, the sides and *connexivum* pale yellow; beneath infuscated in the middle, the sides and posterior margin of the segments yellowish. Length 3 lines.

By the form of the *palæ*, ♂, closely allied to *C. Wollastoni*, but differs in colour, being brown-black, not brown; in the greater sharpness, distinctness, and paleness of the lines on the elytra; and especially in the short form of the black spot on the posterior tarsi, which in *C. Wollastoni* reaches far up the inner side of the joint.

Several examples taken by Mr. Bold in September, at Gosforth, "in a lake into which a burn runs."

CORIXA COGNATA, n. sp.

Yolk-yellow with black markings. *Pronotum* with seven very fine, impressed black lines, nearly all of them shortened and joined to others. *Clavus* with the first five or six lines mostly straight, the rest irregular. *Corium* with short, thick, irregular lines, posteriorly and inwardly interrupted by a longitudinal streak. *Legs* yellow, *palæ*, ♂, roundly dilated on the upper-side anteriorly; *tarsi*; 3rd pair, on the apex of the 1st joint a small, black, triangular spot.

Head yellow-brown ; facial depression, in ♂, oval, deep, extending forwards to the middle of the eyes.

Thorax : *pronotum* with a faint anterior keel and seven very fine, impressed, black, transverse lines, all, or nearly all, shortened and joined to others, the yellow intervals wider. *Elytra* : *clavus* with the first five or six black lines mostly straight with wider intervals, the rest irregular, angularly undulating : *corium* with short, thick, irregular, jagged and twisted transverse black lines mostly connected just before the outer ends, (the yellow intervals broader and more irregular in the ♀ than in the ♂), on the posterior inner angle a short, longitudinal, black streak ; marginal channel entirely yellow ; membrane-suture yellow, narrow, distinct : *membrane* with twisted, hieroglyphic markings, sub-parallel round the margin ; margin narrowly black. *Sternum* entirely yellow. *Legs* yellow : 1st pair ; *tibiæ* arcuate, in the ♂ brown above ; *palæ*, ♂, on the upper-side, anteriorly, roundly dilated to the apex, with a brown line on the edge : 2nd pair ; *tibiæ* embrowned, *tarsi* with a brown spot at the apex : 3rd pair ; 1st joint at the apex, on the inner side, with a small, black, triangular spot, of which the outer angle just touches the exterior margin of the joint, 2nd joint clear, the margins with a fine black line ; *cilia* black posteriorly, yellowish on the basal half of the 1st joint.

Abdomen pale yellow, the base of the segments, especially in the ♂, infuscated.

Length $2\frac{3}{4}$ —3 lines.

Distinguished from all other species by its yellowness. Comes next to *C. sodalis* in the character of the *palæ* and in the form of the spot on the posterior *tarsi*, but differs widely in colour and in the bolder character of the markings on the *elytra*.

One ♂, Loch Grienan, Rothesay, September, 1866 (*Douglas*).

One ♂ and two ♀, Loch Leven, August, 1868 (*Power*).

CORIXA SHARPI, *Doug. & Scott.*

Of this species, described last year from a single ♀ (*Ent. Mo. Mag.*, v, 295), Dr. F. Buchanan White was fortunate enough last July to take two or three specimens in the same loch where he found *C. alpestris*, and we are thus enabled to give the distinctive characters of the male.

♂. Facial depression broad, deep, extending beyond the eyes on the frontal prominence. *Tibiæ* arcuate, narrow at the base, sub-clavate, longitudinally trigonate, the angles sharply defined. *Palæ* cultrate, broad, the base narrower than the end of the *tibiæ*, the upper margin gradually rounded to the obtuse apex, and anteriorly inclined inwards, the lower margin gradually widened from the base and then slightly sinuate to the apex ; seen from the inside, the upper margin, from the base for nearly half its length, is depressed and turned down sharply

inwards ; outside slightly convex ; seen from above, the whole pala has a flattened and twisted appearance, resembling one of the blades of a steam-ship's screw-propeller.

The following species, in the form and width of the head, in the eyes not reaching the posterior margin, in the presence of the facial depression in both sexes, and in the form of the pronotum, recedes from the type of *Corixa*, and approaches *Cymatia*, and it may hereafter be deemed desirable to establish for it a new genus, which may probably also include *Corixa Rogenhoferi*, Fieb.

CORIXA ALPESTRIS, *n. sp.*

Corixa alpestris, Buchanan White, in litt.

Black, shining. *Head* considerably wider than the pronotum, prominent in front ; facial depression in both sexes. *Pronotum* and *clavus* delicately rastrate. *Pronotum* short, angular posteriorly, disc with a distinct longitudinal keel on the anterior half, and about eight indistinct, impressed, concolorous, transverse lines. *Clavus* and *corium* with very fine, scarcely perceptible yellowish lines. *Palæ* in both sexes narrow, very long-cultrate, in the ♂, seen from the side, at the base, on the upper-side, roundly widened, the dilatation, seen from above, forming a long, cordate depression.

Head, including the eyes, much wider than the pronotum, anteriorly convex, in front prominent beyond the eyes, posteriorly, on each side piceous, depressed, the middle rather elevated, on each side of which, and along the margin of the eyes, is a row of punctures, other scattered punctures are also on the crown ; posterior margin sharply raised, extending behind the eyes. *Face* covered with very long, projecting, yellowish hairs ; facial depression in ♂ oval, concave, extending on the frontal prominence beyond the eyes, in ♀ piceous, flat, extending only to the middle of the eyes ; *labrum* yellowish-brown.

Thorax : *pronotum* short, pentagonal ; sides short, nearly straight, hinder sides nearly straight, apex obtusely pointed ; disc slightly convex, with about eight transverse, scarcely perceptible, slightly impressed concolorous lines (in some examples, in certain lights, the intervals are indistinctly yellowish at the ends) ; on the anterior half of the disc a distinct longitudinal keel. *Elytra* : *clavus* with delicate, undulating, interrupted, transverse lines rarely reaching the inner margin, more distinct at the base ; claval suture raised, distinct : *corium*, clothed with very fine, short, decumbent, yellowish hairs and with delicate, undulating, much interrupted, yellowish, transverse lines, the posterior inner angle almost devoid of marking ; membrane-suture obsolete, and the markings continued over it ; marginal channel livid black : *membrane* with markings like those of the corium, short and parallel on the inner side, the margin all round black, unspotted. *Sternum* : *prosternum* side lobes pale

yellow; *scapulæ* pale yellow outwardly; *pleuræ* obscure yellowish posteriorly, *parapleuræ* obscure yellowish (in the ♀ the light colour on all these sternal lobes is more obscure than in the ♂). *Legs*: 1st pair black above, dingy whitish beneath; ♂, *thighs* beneath, on the lower margin, with a pale, rounded, foliaceous enlargement, which is suddenly contracted at the apex (in the ♀ this enlargement is less); *tibiæ* arcuate, on the upper side compressed into an angular, longitudinal ridge: *palæ* very long, cultrate, curved above to a long point, the inner margins with very long, strong, projecting brown hairs; seen from the side the base seems widened on the upper-side in a semi-oval form, seen from above this enlargement has the form of a long-cordate hollow with raised edges, projecting at its base roundly on the outer side, and extending nearly half the length of the *pala* (looking as if a small open shell had been affixed); in the ♀ the *palæ* are narrower, sub-aculeate, and without the basal enlargement: 2nd pair, *thighs* fuscous, pale on the basal third and beneath, *tibiæ* and *tarsi* fuscous, posteriorly black, *claws* fuscous, posteriorly yellowish: 3rd pair, *thighs* and *tibiæ* obscure yellowish, broadly black on the margins; *tarsi* yellow with black margins, overlaid with very long, black cilia.

Abdomen above, black; *connexivum* yellow with black margin; under-side, in the ♂, the straight segments black with the posterior margin distinctly dingy white, the border broadest in the last of these segments, the contorted segments dingy white with fuscous shades; in the ♀ all the segments, dingy whitish with narrow paler margins. Length, ♂, $3\frac{1}{2}$, ♀, 4 lines.

For this fine and remarkable addition we are indebted to the enterprise of Dr. F. Buchanan White, by whom several examples of it were found last July "in a small loch at an elevation of about 2,000 feet on Ben Hearag, Strathglass, Inverness-shire, in company with *Dytiscus lapponicus*."

In the "British Hemiptera," the following corrections are required:—

Page 57.—*Sehirus albomarginatus*: the lateral margins of the *pronotum* and *elytra* are stated to be yellowish-white, whereas this colour exists on the latter only. Mr. Rye pointed this out to us just after he made the captures noted *ante* p. 183.

Page 225.—*Nysius*: "the 3rd, 4th, and 5th nerves connected beyond the base by a cross-nerve forming two cells," should be "the 4th and 5th nerves connected beyond the base by a cross-nerve forming one large cell."

Page 299.—*Miridus*: "longish-oval; viewed from the side almost a parallelogram,"—insert "head" *before* "viewed."

LEE: February, 1870.

ON NEW OR RECENTLY DESCRIBED SPECIES OF *DIURNAL*
LEPIDOPTERA.

BY A. G. BUTLER, F.L.S., &c.

Family *NYMPHALIDÆ*, Westwood.SUB-FAMILY SATYRINÆ, *Bates*.Genus *EUPTYCHIA*, *Hübner*.1. *EUPTYCHIA FETNA*, n. sp., pl. 1, fig. 1.

Wings above pale brown; front-wings with two curved ferruginous bands, the inner one crossing the discoidal cell in the centre, the outer one at its external inferior angle; a nebulous ferruginous patch between the median nervules; an interrupted zigzag sub-marginal brown line and a sub-apical blind black ocellus with yellow iris: hind-wings crossed by a central ferruginous line; a macular sub-marginal brown stria and a sub-anal black ocellus with small silver pupil and yellow iris.

Wings below paler, ocelli placed as in *C. Enyo*, but the three inferior ones of front-wings obliterated; a sub-marginal brown chain-line; front-wings with ferruginous bands as above; a line of the same colour on the inner margin of the sub-costal basal swelling; hind-wings with two transverse ferruginous bands, the inner one crossing the discoidal cell just before its centre, the outer one just before its termination.

Expanse of wings, 1 inch, 5 lines.

San Geronimo, Plain of Salama (Hague), one example.

Coll. Salvin.

This beautiful little butterfly will come next to *E. Enyo* from Cuenca; it is a very distinct species of the *Mollina* group, and is the fifth *Euptychia* of that group hitherto described.

2. *EUPTYCHIA LABÈ*, n. sp., pl. 1, fig. 2.

Allied to *E. Myncea*, but differing in its lighter colouring, larger and more distinct ocelli, also above in the broader sub-marginal band of the hind-wings: below the ground colour is brownish-white; the bands narrower than in *E. Myncea*, of a deep red colour, the ocelli, though agreeing in their position, differ in their relative size, the black-centred ones being enlarged, the silver-centred ones diminished in size; the dark nebulous discal band is obsolete, giving place (below the ocelli) to a broad ochreous patch; the undulated sub-marginal line (simple throughout in *E. Myncea*) is geminate, forming an irregular chain, and terminating at the anal angle in a sub-quadrate ferruginous patch.

Expanse of wings, 1 inch, 10½ lines.

Calobre and Santa Fé, Veragua (Arcé); Polochic Valley (Hague)

♂, ♀, three specimens.

Coll. Salvin.

May be placed next to *E. Palladia*, a species, in some respects, intermediate between it and *E. Myncea*.

3. *EUPTYCHIA GULNABÈ*, n. sp., pl. 1, fig. 3.

♂. Allied to *E. Harmonia*, but differing in its greater size and sinuated hind-wings; also below in its uniform brown colouring; the central lines (especially of

the front-wings) placed wider apart and scarcely divergent; the undulated sub-marginal line, and the obscurity of the ocelli, which are also more uniform in size.

Expanse of wings, 1 inch, 9 lines.

Panama (McLeannan), ♂, one specimen. Coll. Salvin.

Will come next to *E. Harmonia* from Quito.

4. EUPTYCHIA MAIMOUNE, n. sp., pl. 1, fig. 4.

Wings above dark olive-brown; hind-wings with a black sub-marginal line from the third median branch to the anal angle: below paler with two sub-marginal blackish lines (the inner one undulated); margin and fringe dark brown: front-wings irrorated with ochreous scales; two central, transverse, dark brown bands (the outer one oblique), and a disco-cellular striola of the same colour; five discal ocelli with ochreous irides, the two uppermost black, the rest brown, the first and third slightly smaller than the others, and blind, the remainder with minute white pupils: hind-wings with two somewhat irregular parallel dark brown central bands; six large discal ocelli with yellow irides, the fourth brown, the rest black, the first and fourth with bluish, the others with silvery pupils, the second and fifth considerably larger than the others.

Expanse of wings, 1 inch, $7\frac{1}{2}$ lines.

Pebas, E. Peru (Hauxwell), ♂, one specimen. Coll. Salvin.

This species, though belonging to the most variable group of the genus, seems to me to be distinct; it differs from all its allies in the broader bands of the under-surface, which in the front-wings are more regular, and diverge more towards the costa than in the other species; the ocelli, also, are very distinct, and, in the hind-wings, are so large, that they encroach upon the sub-marginal line.

The regularity of the hind-wing bands in the *Hermes* group proves to be a variable character, so that I am inclined to believe that two species, hitherto regarded as distinct from others, will have to be sunk, viz., *E. Sosybius*, Fabr., as a variety of *E. Hermes*, Fabr., and *E. Atalanta*, Butl. of *E. fallax*, Feld.

5. E. JAREZIA, Butler, pl. 1, fig. 5.

Cistula Entomologica 2, p. 20, n. 2 (Jan., 1870).

Habitat unknown.

♂, Coll. Druce.

Allied to *E. Saturnus*, but differing on the under-surface in the absence of any white colouring in the front-wings, and the much greater restriction of the white in the hind-wings; also in the entirely different relative position of the central lines.

6. E. MUSCOSA, Butler, pl. 1, fig. 6.

Cist. Ent. 2, p. 20, n. 3 (1870).

Brazil.

♂, Coll. Druce.

A very remarkable species of the *Quantius* group: in the moss-like spots upon the under-surface, and in the strongly angulated form of the front-wings, unlike any other *Euptychia*.

7. *E. OREBA*, Butler, pl. 1, fig. 7.

Cist. Ent. *♀*, p. 19, n. 1 (1870).

Habitat unknown.

♂, Coll. Druce.

The colouring of the under-surface in this insect is very similar to that of the species belonging to the *Neonympha* group of the genus *Taygetis*: the species comes nearest to *E. nebulosa*, from which it may be at once distinguished by its greater size, the more slender central lines, and different ocellation of the under-surface.

Before leaving *Euptychia*, I wish to correct one or two errors which the re-examination of types and the comparison of longer series of species than were formerly at my command have discovered to me.

The true type of *E. similis*, described in my monograph in the Zoological Proceedings for 1866, proves to be a modification of *E. Themis*, described and figured in the supplement to my monograph (P. Z. S., 1867; pl. xii, fig. 13); whilst *E. similis* of the supplement, figured (pl. xii, fig. 10) from an example in the British Museum collection, proves to be a distinct species, which may now take the name of *E. Undina*.

Euptychia Pieria (Monogr., ^{P. Z. S.} p. 463, n. 13; pl. xxxix, fig. 3) is, in all probability, a variety of *E. usitata* (Monogr., p. 463, n. 11, pl. xxxix, fig. 2).

Family *ERYCINIDÆ*, Westwood.

SUB-FAMILY *ERYCININÆ*, Bates.

Genus *NYMPHIDIUM*, *Fabricius*.

NYMPHIDIUM LILINA, n. sp., pl. 1, fig. 8.

♂. Front-wings above dark cupreous, intersected by greyish nervures; the basal area striolated with violet scales: a broad oblique snow-white patch upon the costa beyond the discoidal cell, and terminating (upon the second median branch) in two black spots: the anal half of the inner margin irregularly white; a sub-marginal chain-like series of violet ring-spots, terminating (upon the white internal area) in two black spots; fringe white, black-varied: hind-wings snow-white; base copper-brown; three sub-marginal black spots near the apex: body brown, abdomen ochraceous.

Wings below nearly as above; the copper-brown replaced by dull brown, which, in some lights, shows a cupreous reflection; the violet markings replaced by white; hind-wings with seven sub-marginal black spots; base olivaceous, bounded upon the costa by two black spots; a brown patch upon the costa near the apex.

Expanse of wings, 1 inch, 9 lines.

Mexico.

♂, one example, Coll. B. M.

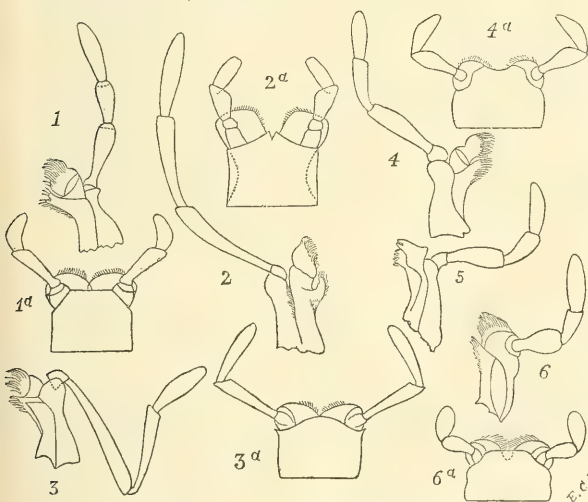
This very beautiful species was presented to the National Collection by the late Edward Doubleday, Esq.; it is perfectly unique in pattern, and comes near to no described species of the genus.

British Museum, February, 1870.

ON *HYDROBIUS* AND ALLIED GENERA.

BY D. SHARP, M.B.

Whilst engaged in the examination of our *Hydrophilidæ*, I have become impressed with the fact that the species of the genus *Hydrobius* (as understood by Mulsant, Lacordaire and Duval) are very discordant in facies or appearance; and, acting on the impression so gained, I have made careful examination of the external anatomy of these insects and the allied genera. The result is that I have found that an arrangement of the species of these genera, in accordance with their facies, would also be a natural one as regards their anatomical and generic characters. The divisions I think it will be well to adopt are exactly in accordance with those proposed by Thomson in his "Skandinaviens Coleoptera." As, however, the characters given for these divisions by that talented author are in some respects incomplete, and as his genera have not been yet adopted in such catalogues as have been published since his work appeared, I have thought a sketch of the characters of these genera may be useful to entomologists. I am not acquainted with the exotic species of this family; but hope they will help to prove the validity of the divisions here adopted.

1. *HYDROBIUS*, *Leach*.

- 1 —maxilla and max. palpus of *Hydrobius fuscipes*.
 1a—labium of ditto.
 2 —maxilla and max. palpus of *Helochaeres lividus*.
 2a—labium of ditto.
 3 —maxilla and max. palpus of *Philhydus melanocephalus*.
 3a—labium of ditto.
 4 —maxilla and max. palpus of *Enochrus bicolor*.
 4a—labium of ditto.
 5 —maxilla and max. palpus of *Paracymus æneus*.
 6 — ditto ditto *Anacæna globulus*.
 6a—labium of ditto.

Of an oblong-oval form. Mesosternum carinated in the middle, in front of the intermediate coxæ. Tibiæ strongly spinulose. Maxillary palpi moderately long, the third joint shorter than the second or fourth, which are of about equal lengths; labial palpi moderately long and moderately stout, the second joint longer than the third.

Two British species; *fuscipes* and *oblongus*.

2. HELOCHARES, *Mulsant*.

Of an oblong-oval form; mesosternum simple; tibiæ feebly spinulose; maxillary palpi very long, the third joint not so long as the second, and the fourth not so long as the third, but more than half the length of the second. Labial palpi short, the third joint not quite so long as the second.

Two British species; *lividus* and *punctatus*.

This genus, established some years ago by Mulsant, has not been generally accepted by entomologists, and is usually considered a subdivision of *Philhydrus*: from this, however, it is distinguished readily, by its simple mesosternum and its longer maxillary, in conjunction with its shorter labial, palpi; this last character, a very striking one, seems to have entirely escaped attention up to this time. The species of *Helochares* are flatter than the *Philhydri*, and rather narrower to the front; this and the more developed maxillary palpi give them a facies of their own, easily recognised after it has been once seized.*

3. PHILHYDRUS, *Solier*.

Of an oblong-oval form; mesosternum carinated, tibiæ feebly spinulose. Maxillary palpi long, second joint considerably longer than the third, and the third than the fourth; the fourth not quite half so long as the second. Labial palpi long and slender.

We have six indigenous species; *testaceus*, *maritimus*, *melanocephalus*, *nigricans*, *ovalis* and *marginellus*.

OBS.—The figures are drawn from dissections of *P. melanocephalus*: in *P. maritimus*, the labial palpi, though similar in structure, are rather shorter, and not quite so slender, and the mentum is even more rounded in the middle.

4. ENOCHRUS, *Thomson*.

Of an oval, convex form; mesosternum carinated, tibiæ feebly spinulose. Maxillary palpi rather long, third and fourth joints of nearly equal lengths; second longer than either of them. Labial palpi rather short.

The single species of this genus, *E. bicolor*, Payk., has hitherto been placed in the genus *Hydrobius*, from which it differs in numerous important characters. It is distinguished from *Philhydrus*, however, only by the differences of the palpi; and, as it has in every respect the facies of that genus, if *Enochrus* be not adopted, it must be considered as a section of *Philhydrus*.

* In making the above engraved drawings from Dr. Sharp's dissections, I have, moreover, observed that the mentum in *Helochares lividus* is of a very different structure to that of *Philhydrus*, having an acute triangular notch in the middle of its anterior margin. Dr. Sharp (to whom I pointed this out, and whose observation it had escaped through the medium in which his dissections were mounted not having dried up enough for minute investigation) has verified this by further observations.—E. C. R.

5. PARACYMUS, Thomson.

Of an oval, but very short and convex form; mesosternum carinated, tibiæ very strongly spinulose. Maxillary palpi short, second and fourth joints of about equal lengths, the third rather shorter. Labial palpi short, the third joint not quite so long as the second. Posterior femora glabrous, and shining beneath.

P. æneus, the single species of this genus, has usually been associated with *Hydrobius*; but, independently of its great dissimilarity in size, it is distinguished from that genus by some evident structural characters; among these may be mentioned its much less developed palpi, and its glabrous posterior femora. In general appearance, it comes near the next genus, *Anacæna*, from which it is distinguished by its carinated mesosternum, and glabrous posterior femora.

6. ANACÆNA, Thomson.

Of a convex and sub-hemispheric, or oblong form; mesosternum simple, tibiæ strongly spinulose. Maxillary palpi short, the fourth joint rather longer than either of the others. Labial palpi very short, the third joint stout, nearly as long as the second. Posterior femora opaque, and densely pubescent beneath.

This genus has also hitherto been associated with *Hydrobius*, but is distinguished, independently of its small size, by its uncarinated mesosternum, and much less developed maxillary and labial palpi. We have, I believe, three species in this country; and, as they have been nowhere, so far as I know, sufficiently described, I give below the characters which distinguish them.

1. *A. GLOBULUS*, Payk. *Sub-hemisphericus, niger, prothoracis elytrorumque marginibus dilutioribus, antennarum basi palpisque testaceis, his articulo ultimo piceo; pedibus rufis, tarsis, præsertim posterioribus, sat crassis.* Long. $1\frac{1}{2}$ — $1\frac{2}{3}$ lin.

Very common in moist, dirty places, throughout England and Scotland.

This species is larger, broader, and more convex than the following, and has the elytra always of a darker colour, except at the margins, and the tarsi are stouter.

2. *A. VARIABILIS*. *Subovalis, convexus, capite nigro, palpis piceis, articulo ultimo nigro, antennarum basi testaceo; prothorace piceo-nigro, lateribus dilutioribus, elytris vel piceis, vel piceo-testaceis; pedibus piceo-rufis, tarsis gracilibus.* Long. $1\frac{1}{4}$ — $1\frac{1}{3}$ lin.

Var. capite utrinque macula parva ante oculos rufo-testacea.

Common in England, rare in Scotland.

This species varies considerably in size and colour. It generally stands in our collections as *Hydrobius bipustulatus* of Stephens; but, as Stephens' description of that species does not accord with the present insect, and as the species has not yet been distinguished (so far as I am aware) by foreign entomologists, I have been obliged to give it a new name.

3. A. BIPUSTULATUS, Stephens, Ill. Brit. Ent., ii, 133 (*Hydrobius*).

Late ovalis, sat convexus; capite nigro utrinque macula magna ante oculos testacea, antennarum basi palpisque testaceis, his articulo ultimo piceo; prothorace testaceo, disco plus minusve infuscato; elytris testaceis, nigro-irroratis; pedibus testaceis.

Long. 1—1½ lin.

Common in England, and sometimes taken in numbers with the water-net; but I have never found it in Scotland.

The colour differences in this species are of themselves sufficient to separate it from the foregoing. I would especially call attention to the *large* marks on the head as a never failing character. Though, as I have stated above, the preceding species is generally called *bipustulatus*, Stephens, and the present one *ochraceus*, Steph., yet, as Stephens' description of *Hydrobius bipustulatus* agrees well with this species, and his description of *H. ochraceus* cannot possibly be applied to it, I have felt no hesitation in changing the name, so as to make it accord with the Stephensian description.

Eccles, Thornhill, Dumfries,
February, 1870.

Note on the occurrence in Britain of Tomicus nigritus, Gyll., and Dryæctes alni, Georg.—Some time back Mr. Crotch was kind enough to forward on my behalf an example of a species of *Tomicus*, distinct from any hitherto recorded as British, to Herr Eichhoff, the great authority for that genus. This has been returned as *T. suturalis*, now considered the female of *nigritus*, Gyll., which must therefore, be added to our list. I captured my specimen in Strath Glass, Inverness-shire. Mr. Crotch also informs me that he also forwarded to Herr Eichhoff a specimen of the *Tomicus* described provisionally by Mr. Rye as *T. Marshami*, and that it is considered by Herr Eichhoff to be *Dryæctes alni*, Georg.—D. SHARP, Eccles, Thornhill, Dumfries, February, 1870.

Dryæctes alni, Georg.—Without doubting the correctness of Herr Eichhoff (who, I presume, possesses or has examined *Dryæctes alni*) in referring my *Tomicus* (*D.*) *Marshami* to that species, I would simply observe that the tree mentioned by Georg (Stettin. Ent. Zeit., 1856 p. 59) as that in which his insect lives is the alder, whereas *Marshami* was found in beech; and that his description is so unsatisfactory

that Ratzeburg seems to have been compelled to add a postscript, by which (as he likens the beetle in turns to *bicolor*, *bidens*, *autographus*, *laricis* and *curvidens*) he has apparently still further obscured its affinities, since in no Catalogue until the last edition of de Marseul's has it appeared in its correct place in *Tomicus* or its subgenera. There is another *alni*, published by Mulsant in the same year as Georg's species, but which is sunk as a synonym of *Saxesenii*, Ratz.—E. C. RYE, 10, Lower Park Fields, Putney, S.W.

Additions to the list of British Coleoptera.—Mons. Chas. Brisout de Barneville, to whom I sent in 1869 some doubtful species of British *Coleoptera* for corroboration, has recently communicated a list of them to me, from which I am enabled on his authority to add the following to our list :—

Bagous nodulosus (Gyll.) Schön., Syn. Ins., 75. One of my two exponents of *B. binodulus*, given to me by the late Rev. H. Clark, who took it, I believe, near Arundel, is undoubtedly that species; the other, obtained from Mr. Brewer, is as undoubtedly *nodulosus*. I do not know the locality of this second specimen, but was informed it was also from Mr. Clark's collection. *B. nodulosus* was erroneously introduced into our lists by myself some years ago, upon an enormous and abraded example of *B. lutulentus*; and it appears to have escaped record since through some oversight, as Mr. G. R. Crotch tells me that he has for some time known that we have both species in this country; *B. binodulus*, indeed, being much the rarer of the two, as he had only one specimen of it, taken by Mr. Brewer in the fens.

Tychius (Sibynes) sodalis, Germ., (Boh.) Schön., Syn. Ins., 377 (*cretaceus*, Bris.). This is the *S. statice*, M.S., of Moncreaff, in "Newman's Entomologist." See Ent. Ann., 1870.

Cryptophagus fumatus, Gyll.; Er., Ins. Deutschl., iii, 363. Already attributed to Britain, in De Marseul's Catalogue, possibly from the Stephensian reference in Erichson (Stephen's insect is *dentatus*). Taken by Mr. Bold in Northumberland.

Meligethes fulvipes, Brisout in Gren. Cat. et Mat., 49. This is the "6, spec. nov.?" of Wat. Cat., from Southend, allied to *M. æneus*.

M. rotundicollis, Brisout, l.c., 56. From Mickleham. Allied to *M. picipes*, from which it differs in its thorax being more strongly rounded at the sides, its finer punctuation, and its tibiæ being less strongly denticulated.

I reserve for a future communication remarks upon some other species apparently new to us in this genus, named for me by M. Brisout. Mr. Crotch has very kindly sent me a list of British *Meligethes* from his own collection, also revised by the same authority, and which contains at least two other species new to our lists, and not amongst my additions.

M. Brisout also corroborates the *Meligethes* originally brought forward by me as *Kunzei*; identifies the *Ceuthorhynchus marginatus* with 6-jointed funiculus referred to in the last No. of this Magazine by me as *C. distinctus*, Bris.; and corroborates as *C. vicinus* (sibi) one small and two larger specimens from Southend hitherto referred to that species with doubt by me.—LD.

Localities for Homalota.—The following species of *Homalota* (with others too common to mention, in all 86 in number) have been taken by me during the last two seasons, chiefly in the London district. All of them have been examined

by Dr. Sharp, to whom I tender my sincere thanks, and the names are those of his Monograph. Most of them are chance captures, and I cannot say I have worked the genus thoroughly; had I done so, this list would probably have been longer.

H. languida, Er., 1 specimen in a marshy place on Wisley common near Weybridge: *luteipes*, Er., 1 specimen at Sanderstead, in dead leaves: *plumbea*, Wat., under sea-weed on the coast, Dover: *londinensis*, Sharp, a few in marshy places at Lee: *oblongiuscula*, Sh., in dead leaves, Sanderstead: *pagana*, Er., a few specimens at Sanderstead, Wimbledon, &c.: *occulta*, Er., 1 or 2 specimens at Shirley: *fungivora*, Th., at Shirley, Hampstead and Darenth, in dead leaves, and in fungus at Loughton: *incana*, Er., sparingly, in the neighbourhood of Lee, in marshy places: *nigella*, Er., in company with the preceding, but of more frequent occurrence: *æquata*, Er., under bark at Cobham, Kent (a few specimens): *angustula*, Man., in a sand pit at Shirley, and in dead leaves on Mickleham Downs: *linearis*, Gr., under bark of various trees at Shirley, Mickleham, Cobham, and Darenth: *debilis*, Er., several specimens in a marshy place at Lee: *fallaciosa*, Sh., 1 specimen in a marshy place at Lee, Kent (mentioned in Dr. Sharp's Monograph as occurring only in Scotland): *rufotestacea*, Kr., 1 specimen at Mickleham (Ent. Mo. Mag., vol. v., p. 218): *gemina*, Er., in marshy places at Lee: *soror*, Kr., sparingly at Weybridge, Hammersmith, Loughton, and Mickleham: *exilis*, Er., a few specimens at Weybridge and Wimbledon: *palleola*, Kr., 1 specimen in dead leaves at Darenth Wood, last autumn (the only locality given in Dr. Sharp's monograph is Reigate): *validiuscula*, Kr., at Mickleham, in dead leaves (the only locality given in Dr. Sharp's Monograph is Edinburgh): *subanea*, Sharp, in fungus, at Mickleham: *triangulum*, Kr., 1 specimen at Gravesend, on the banks of the Thames: *ignobilis*, Sh., several specimens at Loughton, last autumn, in fungus and dead leaves (only recorded from Edinburgh and Shirley in Dr. Sharp's Monograph): *boletobia*, Th. (*nigritula*, Wat. Cat.), in fungus at Weybridge and Mickleham: *coriaria*, Mill., several specimens in West Wickham Wood, in moss, also at Darenth: *sodalis*, Er., scarce, Weybridge, Mickleham, and Loughton: *divisa*, Märk., a few specimens at Weybridge and Mickleham, in fungus: *gagatina*, Bau. (*variabilis*, Kr.), in dead leaves at Weybridge, Birch Wood, Mickleham, and New Forest: *nigricornis*, Th., at Weybridge, in dead leaves: *angusticollis*, Th., single specimens at Mickleham and Richmond Park: *corvina*, Th., single specimens at Weybridge and Mickleham, and in profusion in fungus, last autumn, at Loughton: *atomaria*, Kr., in dead leaves at Sanderstead, 1 specimen: *testaceipes*, Heer, 1 specimen at Sanderstead, in dead leaves: *oblita*, Er., several specimens at Mickleham, in fungus: *autumnalis*, Er., 3 specimens in *Cossus*-burrows in the New Forest, last July, (only recorded from Norwood and Horning in Dr. Sharp's Monograph): *inquinula*, Er., common in dung heaps, at Gravesend: *flavipes*, Gr., at Cobham, a few specimens in vegetable refuse: *canescens*, Sh., single specimens at Hounslow and Weybridge: *celata*, Er., single specimens at Weybridge, in dead leaves: *marcida*, Er., very common in fungus, &c., in the autumn, at Loughton, Shirley, Darenth and Birch Woods, and Mickleham: *intermedia*, Th., at Mickleham, in fungus, rare: *cadaverina*, Bris., rare, single specimens at Weybridge and Loughton: *lævana*, Muls., 1 specimen at Weybridge: *cinnamoptera*, Th., a few specimens at Loughton, in fungus: *testudinea*, Er., sparingly, at Wimbledon and Mickleham, in leaves: *muscorum*, Bris., common, Darenth, Weybridge, Southend, and Cobham: *pilosiventris*, Th., 2 or 3 specimens

at Shirley: *subsinnuata*, Er., a few specimens at Hampstead and Shirley, in dead leaves: *orphana*, Er., 1 specimen near Weybridge.—G. C. CHAMPION, 274, Walworth Road, S., 29th January, 1870.

Capture of Rhizophagus cribratus in quantity.—Whilst pupa-digging round an old oak in Studley Park this afternoon, I came upon a piece of decayed fungoid growth on the tree root, about an inch in diameter, covered with *R. cribratus*. Bottling being rather cold work, I put the whole piece in a pill-box, and now find that it contained more than sixty specimens of the beetle.—EDWARD A. WATERHOUSE, Fountains' Hall, Ripon, March 7th, 1870.

Notes on the æconomy of Abdera bifasciata.—My attention was one day attracted by a rotten oak-stick lying on the ground, from the circumstance that the bark on one side presented numerous minute circular holes irregularly disposed. My immediate conclusion was that I had come across traces of some *Tomicus*; but, on cutting into the stick, I found that each hole led into a little *cul-de-sac*, one-fourth to one-third of an inch long, lying parallel with the fibres of the wood. This was obviously the work of some insect; but, as clearly, not of any of the *Hylesinidæ*. I was further puzzled by the inadequateness of the removed material to have fed an insect of the size indicated by the exit aperture. I have not since found any stick containing these holes so abundantly as this first one; but I soon after found sticks similarly perforated, and almost invariably found the holes associated with the presence on the stick of the remains of a fungus. Last spring, I succeeded in finding sticks still inhabited by the larvæ that make these holes, and from which I reared *Abdera bifasciata*. The fungus, of which I have mentioned that traces always accompanied the perforations, is *Corticium quercinum*, P. The larva of *Abdera* feeds in reality not on oak-wood, but on the *Corticium*; and the reason that my first stick was so puzzling was, that all trace of the *Corticium* had disappeared from it. The *Corticium*, though certainly not rare, is only to be found in its appropriate habitat, which, as far as my observations go, is on the branches of from one to three inches in diameter that die and become rotten on the tree. The fungus grows on the under-side of these branches, and though only, I suppose, really alive for one season, its dry remains may continue for several years, and I have found larvæ in it in its second year. Its favourite tree is the oak, but I have also found it on ash.

Such rotten branches as the *Corticium* affects are usually broken off piecemeal by the wind; and, should they happen to fall when the *Corticium* is in suitable condition, the larva of *Abdera* is easily found beneath it. As I have informed several of my correspondents that the *Corticium* grows on the branches after they have fallen, I wish especially to point out that this is not the case; and that, although the fallen branches only are available in searching for the insect, the proper habitat of the fungus, and consequently of the beetle, is, I have fully satisfied myself, on the tree, and their being on the ground is to be regarded as an accident.

The *Corticium* is a thin fleshy fungus of a reddish-chocolate colour, lying flat against the bark on which it grows, but of a tougher consistence than its appearance

suggests. When dry it is a thin hard dark-coloured scale, which finally curls up, and falls off leaving the bark a little altered in appearance, but no doubt advanced a stage in the process of decay.

I know nothing of the oviposition of *Abdera bifasciata*; but, throughout the winter, the larvæ may be found of various ages beneath the *Corticium* feeding on those portions of it nearest the bark. Towards April and May they are full-fed and each makes its way directly into the wood, usually for a short distance, though sometimes for nearly half-an-inch, and then makes a little cell of its own length, parallel with the fibres of the wood, in which it changes to pupa, the entrance to the cell being protected by being stuffed with the sawdust removed in its formation. The larva turns round with its head towards the opening before assuming the pupal state. In emerging I think it usually has to enlarge this opening. The perfect insect emerges in July. Though this is the usual habit of the larvæ, it often happens that the fungus begins to peel off before they are full-fed. I believe this occurs only when the fungus is in its second year of existence. In this case the larvæ make their way into the superficial layers of the bark, in which they seem to find sufficient nutriment, possibly part of the mycelium of the fungus, to feed them to their full growth.

The full-grown larva of *Abdera bifasciata* is 5 mill. in length; its general aspect is much that of a longicorn, the second segment, into which the head can be retracted, being the broadest, the head is oval, being rather longer than broad. The strong jaws, seen from below, are gouge- or scoop-shaped, with a slight projection near the apex, on the upper-side. The labrum is as long as the jaws, rounded, with a fringe of fine hairs, and a transverse line near its edge which does not seem to indicate an articulation. The maxillæ have each a three-jointed palpus, and their inner angles are produced into an organ of similar shape to the palpus, fringed with short setæ towards the extremity of its inner margin, and not appearing to be jointed to the rest of the maxilla, the labium, difficult to observe between the maxillæ, appears to be a rounded plate divided into a basilar half which seems to be dotted with obsolete hairs, and from the margin of which two three-jointed palpi appear to arise, of which the large basilar joints at least are united to the anterior half of the labium, almost entirely hiding it, and the terminal joint (bearing a minute seta) is so small that its existence is doubtful: the antennæ are four-jointed, the last joint bearing a stiff bristle. Beside the last joint, and in front of it, is a rounded body, which is either a separate joint or a process of the third joint (I have not satisfied myself on this point). Behind each antenna, is a row of three blackish eye-spots, each emarginate in front; centrally behind these is a fourth, and at a little distance above this a fifth; these two last are blackish circles, broadest in front. Near these are several bristles; the body consists of twelve segments, they are so transparent that much of the internal anatomy can be seen, some of it being obscured by regularly disposed masses of white fat. There are three pairs of four-jointed legs, the last joint being a brownish claw. Each segment has laterally a stiff looking hair, with two or three smaller ones; the thirteenth segment having two larger hairs and several smaller ones. There is a slight projection on the ventral surface of this segment, hardly perhaps of sufficient size to be called an anal tubercle or pro-leg. There are ten pairs of spiracles, of which the first is situated below the line of the others at the anterior border of the third segment; the second at the

anterior border of the fourth segment (this one is smaller than any of the others, but I have satisfied myself that it is really an aperture, and not merely an approach of the air tubes to the surface); the others are situated more towards the middle of their respective segments, so that the last four or five may be said to be so placed. The thirteenth segment, as usual, has no spiracle. The *Abdera* is infested by an *Ichneumon*, which spins a white silken cocoon in the pupal cavity of the beetle, but which I have not succeeded in rearing.—T. ALGERNON CHAPMAN, Abergavenny, February, 1870.

Description of the larva of Noctua Dahlii—On September 11th, 1868, I had the pleasure to receive from Mr. G. B. Longstaff an abundant supply of eggs of this species, that had been obtained from several females in captivity by Mr. G. Norman, in Morayshire.

The eggs were dome-shaped, flattened, and slightly concave beneath, ribbed and reticulated, of a drab colour with a central zone of brown; in a few hours after I had them they turned to a brownish-slate colour, and the larvæ began to hatch on the 13th September and were all out by the 15th.

The young larvæ were at first of a brownish-grey colour, with black heads, and they soon began to eat the green cuticle from either surface of leaves of dock, *Rumex crispus* and *pulcher*, showing a most decided preference for these plants, though supplied with various other kinds of food.

After their first moult they became a paler brown, with their minute tubercular blackish dots and hairs distinct; and by the time they had passed a second moult, they were three-eighths of an inch long, brown on the back with faintly paler dorsal and sub-dorsal lines, the sides down to the spiracles of a rather darker brown than the back, the ventral surface and sub-spiracular stripe paler brownish-grey tinged with bluish-grey anteriorly.

These larvæ when about one-third grown were handsomer than at any other period, their colours being then deeper and brighter. The full grown larva is from one and three-eighths to one and half-an-inch in length, longer perhaps when fully stretched out, and then it also tapers from the sixth segment to the head which is narrower than the second segment, the thirteenth also tapers and slopes down from the back to the anal extremity; otherwise the figure is tolerably cylindrical.

The great feature in the colouring of this species is the contrast of the back with the rest of the body, and, although the pattern was very much the same throughout the numerous brood which I reared, yet I noticed great variations of colour—from whitish-ochreous—through greyish-ochreous, ochreous-yellow, cinnamon-brown, rich orange-brown, to the deepest tint of mahogany on their backs.

I shall describe one of the varieties as typical of the greatest number. The ground colour of the back down to the sub-dorsal region, bright ochreous, delicately freckled with darker ochreous-brown; on each segment from third to twelfth, more or less distinctly appears a diamond shape of ochreous-brown, with its edges gently vanishing into the ground colour; the dorsal line is of the ground colour between two lines of very dark brown, though in full grown examples it is seldom uninterrupted, being visible only at the beginning of each segment, and thence obliterated by the brown diamond.

The sub-dorsal line is thin, rather paler than the ground colour, edged above

at the beginning of each segment with a thin black streak, which is generally inclined to end in the slightest possible curve just at the lateral point of the dorsal diamond: this diamond form is but obscurely and vaguely represented on the third and fourth segments, and the last of the series is on the twelfth, where it becomes little more than a triangle, while the pale sub-dorsal lines and their black upper edgings are there continuous, and become united by both crossing transversely the end of that segment; on the thirteenth segment the dorsal line only is distinct.

The ground colour of the sides grey or brownish-grey, tinged anteriorly with bluish-grey, the space between the sub-dorsal line and the spiracles is very thickly freckled with dark grey-brown, forming a dark longitudinal side band in agreeable contrast to the back; the sub-spiracular stripe is pale greyish, like the ventral surface, and only to be distinguished from it by its upper and lower edges being a little paler than the rest.

The head is rather pale brown; the second segment has on the back a darker brown velvety patch or plate, rounded behind and margined in front with still darker brown. The tubercular dots are black, rather small, but rendered conspicuously distinct both on the back and sides by a small circle of pale ground colour surrounding each of them; the spiracles also are black.

The winter of 1868-69 being of a mild character, and the food-plants easily obtainable, about sixty of these larvæ continued feeding, and reached their full growth before the end of 1868, the most advanced spun up between dock leaves on November 14th, and others quickly followed; somewhat to my surprise they refused to enter the earth, but, on being supplied with moss, for the most part hid themselves in that, constructing very slight cocoons.

The pupæ is quite of the ordinary *Noctua* form; at first it is a pale greenish colour, and changes in a couple of days to brown, and finally to dark brown, and is very slightly attached by the tail to a thread of its cocoon. This portion of the brood, having all become pupæ by the end of December, did not remain long in that state, but began to appear as moths as early as January 19th, 1869, and so on at intervals, until April 29th, by which time I had bred twenty-six ♂ and twenty-seven ♀: however, a large proportion of them were more or less crippled in their wings, and very dingy in colour, though some curious varieties occurred; but, as a whole, they were not fine examples.

The remainder of the brood meantime had hibernated, some of them no more than two lines in length, others nearly half-an-inch, and many of them died off during the winter; but, on the approach of April, the survivors began to feed, and by the 10th of May they were full grown; they also preferred spinning themselves up in moss or in dock leaves to entering the earth.

The perfect insects, and they really were very perfect and fine, forty-five in number, appeared at intervals between June 4th and July 11th.—WM. BUCKLER, Emsworth, *February*, 1870.

Comparative notes on the larvæ of Xanthia cerago and silago.—Not until the season of 1869 have I had a good opportunity of really knowing the difference between these two species in the larval state, and, for this reason, I never till then had both at the same time, but only one or two of either at long intervals, so that in my recollection they had somehow got to be so much alike as not to be known

the one from the other. No doubt this confusion had arisen in part from my having taken two or three figures at different times of solitary examples too far matured; recent experience having demonstrated that when they are full fed, or nearly approaching that condition, their distinctive characters have faded away, and their identification is then hopeless. I have therefore thought that a description of both *cerago* and *silago* may be of use to some, who perhaps, like myself, have hitherto been unable to distinguish the one larva from the other as they chanced to come under notice.

My sincere thanks are justly due for the kindness and liberality I experienced on the 29th of April from Dr. F. Buchanan White, of Perth, and on May the 4th from Mr. George Baker, of Derby, they having both sent me an abundant supply of sawfly catkins containing young larvæ of both species; and I may mention that thenceforth these larvæ all fed and thrive well on sawfly leaves, and the moths appeared from the 30th of July to the 14th of August.

In both species the body of the larva is cylindrical, having the segments plump and deeply defined, and tapering a little anteriorly; the head decidedly smaller than the second segment; the hinder segment tapering also, and the anal pro-legs very close together beneath its extremity.

The larva of *cerago* has on the upper-surface, as far as the black spiracles, a ground colour of reddish-brown or purplish-brown, and beneath the spiracles a much paler tint of the same; the ventral surface pale greyish-violet with a slight tinge of bluish-green on the anterior segments; the whole upper-surface is freckled with dark brown excepting the segmental divisions, which, when stretched out, are seen to be unfreckled, and of rather a violet tinge.

The dorsal line when visible is pale brownish-ochreous, often obscured by the two dark brown lines that enclose it, and these often run together in a dark brown spot at the beginning of each segment, are lost in the middle, and re-appear at the end; for, on the middle of each segment is a *diamond* shape of dark brown composed of thickly aggregated freckles: the sub-dorsal is a dark brown freckled line forming the upper boundary of a broad side-band of dark freckles, extending to the spiracles, which are situated on its lower edge; the sub-spiracular region, belly, and legs, are faintly freckled with pale brown; the head is dark brown, the second segment has a black velvety collar or plate rounded behind, on which the sub-dorsal lines appear conspicuously whitish or pale ochreous, with sometimes a faint indication of a dorsal line on it; the anal tip is often similarly marked; the tubercular dots are often distinctly visible on the back in three pairs on each segment (two pairs being the usual allowance), scarcely paler than the ground colour, and ringed with dark brown.

When young, some larvæ of this species are much darker, with the marks and freckles almost black; but, as they increase in size, they become paler. In short the distinct series of *diamond* shapes down the back, and the broad dark band along the sides, are characters that effectually distinguish this species.

The larva of *silago*, though of similar size, form, and general aspect of colouring, yet, when closely scrutinized, presents to view a different design in the ornamentation.

The freckling on the back extends on either side as far as the sub-dorsal region, forming on each segment an *irregular squarish* shape, quite uniform in depth of

colouring, with the dorsal line only just indicated at the segmental divisions: the sub-dorsal region forms the upper boundary of a very *broad stripe of paler freckling*, followed by a much narrower and still *paler one*, and then a broad one of similar depth of colour to the back, but with more of a violet hue: the rest may be described in the same terms used for similar parts of the larva of *cerago*.—ID.

Note on Anthrocera flipendulæ.—From larvæ of this species collected during last July at Branscombe, which is situated between Seaton and Sidmouth, I bred the perfect insects in August; and, as the under-cliffs at Branscombe are very much exposed to the sun's rays (being famed for the production of the earliest crops of potatoes in the West of England), I am half inclined to call this a second brood, induced by locally exceptional heat: of course I do not venture to speak at all decidedly on such slender evidence; only, having heard a similar opinion expressed once or twice before, I now put it forth to invite criticism on it.—J. HELLINS, Exeter, March, 1870.

Remarks on the habits of Liparis salicis.—Mr. G. T. Porritt, of Huddersfield, has kindly communicated to me the result of his experience in breeding *Liparis salicis*, which by no means agrees with the statement of Von Prittwitz and Rössler that this species hibernates in the egg. Mr. Porritt has always found that the eggs are laid in July or August, that the larvæ are hatched in about three weeks, and then feed and grow very slowly indeed until the approach of winter, when each spins for itself a small white cocoon, in which it spends the whole of the winter, coming forth and re-commencing to feed as soon as the willows and the poplars come into leaf in the spring. This, at least, is the habit of the species in the north of England, and it may be only a proof of the inveterate insularity of the British (moth) refusing to adopt continental ways; but Mr. Porritt suggests, that the fact of the parent moth covering its eggs thickly with a crystal-looking substance *may* have led to the supposition that they were intended to be thus protected through the winter; and this supposition *may* have been strengthened by the discovery of the young larvæ in the spring still so very small, that they might be thought to have been lately hatched.

Can any one help us to settle the why and wherefore of this difference between the Continental and English observers in their accounts of *Liparis salicis*?

Mr. Porritt also mentions (as *exceptional* facts) that he once had a brood of *Polia chi*, which were hatched two or three weeks after the eggs were laid: and that on another occasion he bred *Orgyia antiqua* from eggs deposited in the previous part of the same season.—ID.

* * Von Prittwitz remarks that *L. salicis* occurs in Silesia in immense swarms; referring also to a recorded observation of Zeller's of its having occurred as late as October.

Ratzeburg (Forst-Insekten) says that ordinarily the eggs do not hatch till spring, but that some occasionally do so in the autumn.

Boisduval relates that "the little caterpillars emerge from the egg at the end of April. The eggs are covered by a shining white plaster, which may be trivially compared with spittle. In localities where the species is common, it is possible to greatly diminish its numbers by picking off these shining masses, each of which encloses an almost entire brood."

According to these remarks, we think it possible that the habits of the British insect, as related by Mr. Porritt, differ somewhat from those of the species as observed on the continent; yet Ratzeburg shows that the rule of hibernating in the egg is not invariable. Perhaps observers in other parts of our kingdom will relate their experiences with this insect.—Eds.

Remarks on Cirrhædia ærampelina, especially with regard to its winter condition.—On perusing Mr. Hellins' list of *Macro-Lepidoptera* that hibernate in the egg state (see p. 222), I find one or two species mentioned therein which do not always pass the winter in that state in some places, though I am told they do so in others. Avoiding those species that have already been the subject of controversy, I may say that, in the Isle of Man and Denbighshire, North Wales, *Cirrhædia ærampelina* appears in the imago-state in July and August, the eggs hatch in the autumn, and the larvæ grow to about three-eighths of an inch long before the winter, then making slight silken hybernacula amongst the moss and lichens. They may be taken now (March) by those who know their habits; and at this season are from three-eighths to half-an-inch long, stout, grey, irrorate, and rather rugose and pilose, the face black, the anterior segments with black horny plates. In April they awake on some warm day, begin to eat ravenously, and seem to swell out and expand rather than grow, and so rapidly as to make the increase in size almost visible to the observer. Should the weather change to cold, they again become dormant, but if not, they soon go down and make a slight cocoon, in which they remain a long time before assuming the pupa-state. About June they will be found in chrysalis, or oftener dead, which latter I have seen to be the case both in confinement and at large. Isle-of-Man specimens vary from bright yellow with faint central band, to rich dark brownish-ochreous, the central band only indicated by two faint narrow lines. I have seen French examples unicolorous like this latter form, but all the Welsh specimens are richly coloured, and the veritable *centrago* of Haworth. With regard to *O. upsilon* I have repeatedly taken its larvæ at sugar in April and May, almost full-fed, but this is no proof to my mind that it is always, at all places, and under all circumstances, in the same condition at the same time; neither do I doubt that in some places *C. ærampelina* deposits its eggs in August, which hatch in the following April, as stated at p. 222, though I have never found them do so.—C. S. GREGSON, Fletcher Grove, Stanley, Liverpool, March 2nd, 1870.

What are Perla bicaudata of Linné and P. maxima of Scopoli?—An attempt to gain more definite knowledge of our *Perlidae* for the forthcoming Catalogue of British *Neuroptera* has resulted in the conviction that this family must at present remain in a very unsatisfactory condition, and with, so far as I can see, no immediate prospect of amendment. Yet, some interesting questions have occurred to me; and, among others, those of the identification of *Phryganea bicaudata* of Linné and *P. maxima* of Scopoli. The name *bicaudata* has been applied by different authors to almost all of the larger and more common European species, the description giving no certain clue to what was intended. In 1839, Mr. Newman, who formerly studied these insects assiduously, in his "Synonymy of the Perlites" (*Mag. Nat. Hist.*, N. S., vol. iii.), identified it with the largest European species, now generally known as *P. bipunctata* of Pictet, adding the remark—"that Fabricius and all

"subsequent authors have entirely mistaken the *Phryganea bicaudata* of Linnæus "will be perfectly evident to any entomologist who will take the trouble to "examine the Linnæan specimen, now in possession of the Linnæan Society." Notwithstanding this assertion, Pictet in his "Perlides" did not feel justified in considering the matter as settled, and named the species "*bipunctata*." I have examined the Linnæan Cabinet, and find therein no insect that has any claim to be considered a type of *bicaudata*. It is true there is a label "*bicaudata*," but in the handwriting of Sir J. E. Smith and not of Linné. In fact, it is one of the numerous cases in which the insects added by Smith, and labelled by him, have been mistaken for actual Linnæan types. The insect is very old, and I will not affirm it is *bipunctata*, but by the side of it (without labels) stand an imago and larva certainly of that species. Hence the name *bicaudata* remains as unsettled as ever, and will probably sink quietly into oblivion, unless some Swedish entomologist can succeed in reinstating it. I may add, that *bicaudata* of Zetterstedt (Ins. Lapp., 1058), Linné's fellow-countryman, is evidently *Dictyopteryx microcephala*, Pictet.

And now, as to *maxima* of Scopoli (Ent. Carn., p. 269; 1763), a name that has also been variously applied. Herr Brauer in his "Neuroptera Austriaca" gives it as a synonym of *abdominalis*, Burm., without according to it the right of priority, thus indicating doubt. Scopoli himself cites *bicaudata* of Linné, and yet applies a new name. That *maxima* is really the species described by Pictet as *bipunctata*, appears to me most probable from his description of the imago, and absolutely certain from that of the larva, for he had bred the species. I have no hesitation, therefore, in adopting Scopoli's name. The species occurs in all the mountainous regions of central Europe, and surpasses any other in size. As British, I have at present seen only a Leachian example in the British Museum, labelled "Dartmoor," and some smaller and somewhat doubtful specimens in the Entomological Club collection, probably taken by Mr. Newman at Leominster, but think it probable that other examples are extant, and that the insect referred to by Curtis as *P. grandis* is the same species.—R. McLACHLAN, Lewisham, January 8th, 1870.

Entomological Society of Newcastle-on-Tyne.—We are requested to notice that, on the 1st of February, a meeting was held at Mr. Johnson's, 48, Dean Street, for the purpose of establishing a Society in that town, when about 20 Members joined. The Secretary is Mr. Hamilton, of 13, Union Street. We believe the Society consists chiefly of working men, many of whom are beginners, and they would be grateful for larvæ or eggs of *Lepidoptera*. From the best source, we hear that a taste for Entomology and Natural History in general is gradually springing up in Newcastle.—[EDS.]

ENTOMOLOGICAL SOCIETY OF LONDON, 21st February, 1870. A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

M. M. Schiölte, of Copenhagen, and von Siebold, of Munich, were elected Honorary Members, and Messrs. G. T. Porritt, of Huddersfield, and B. J. Lucas, of Tooting, Subscribers.

Mr. Hunter exhibited a *Plusia* from the New Forest, which he thought might be *P. ni*, recently introduced into our lists (*interrogationis?* Eds.).

Mr. Müller exhibited a dipterous gall on the flowers of *Tanacetum vulgare*, sent to him by Mr. D'Orville, of Exeter. This gall consisted of hypertrophied discal florets, which were raised far above the level of the others.

Mr. Pascoe exhibited *Nepharis alata*, of Castelnau, from King George's Sound, and remarked that it was identical with the recently described (Tr. Ent. Soc. N. S. Wales) *Hiketes thoracicus* of King.

A discussion took place on a question of nomenclature, raised by Mr. Pascoe. It appeared that Dejean, in 1834, proposed the generic term *Diurus*, but gave no description. This genus had been generally adopted, and even figured by Westwood, but no description had actually been published until 1862, and then by Mr. Pascoe himself. But, in 1852, Motschulsky had described another genus under the hybrid term *Biurus*, recently corrected to *Diurus* by Gemminger and von Harold. Mr. Pascoe therefore enquired whether it would not be better to impose a new name in lieu of Dejean's. The opinion of the meeting seemed to be that, having regard to the peculiar circumstances, it would be inadvisable to adopt that course.

Mr. Butler read a paper "on some Butterflies recently received by Mr. Swanzy from West Africa."

7th March, 1870. F. P. PASCOE, Esq., F.L.S., Vice-President, in the Chair.

The Rev. R. P. Murray, of the Isle of Man, and M. J. C. Puls, of Ghent, were elected Members.

Professor Westwood exhibited a series of specimens of Locusts from the Hope Museum, in connection with the question raised at previous meetings as to which was the real *migratoria* of Linné. It appeared that there were two closely allied European species, differing in the form of the pronotum. These had been described and figured by Fischer (Orthop. Europ.) as *migratoria*, L., and *cinerascens*, Fab. (with which latter *Christii* of Curtis was identical). The specimens bearing the name *migratoria* in his possession were mostly very old, one, perhaps, having belonged to Donovan; they seemed to be Fischer's *cinerascens*, but Professor Westwood thought that these should really bear Linné's name—certainty being unattainable, tradition should supply its want.

Mr. Smith held the opposite view, and had communicated with Professor Stål, of Stockholm, who informed him that Fischer's *migratoria* was the only species which, to his knowledge, had been taken in Sweden (Neither of these must be confounded with the recently exhibited *peregrinum*.—Eds.).

Mr. Stainton exhibited a bred specimen of *Cosmopteryx Lienigiella* from larvæ received from the Island of Oesel. He had also bred a British example from a larva found near Cambridge.

The Rev. H. S. Gorham exhibited (through Mr. Janson) an example of *Sunius neglectus*, a species new to Britain.

Mr. Müller exhibited a large gall, like an acorn or olive, on the leaves of a species of *Gnetum* from India.

Mr. Janson exhibited a collection of Butterflies sent by his son from Nicaragua.

Dr. Wallace exhibited *Herminia derivalis* and a variety of *Melitæa Athalia* captured by Mr. Harwood, of Colchester.

Dr. Wallace also exhibited a collection of silk-producing *Saturniæ* and their cocoons, with specimens of manufactured silk; and urged upon the meeting the necessity of extending this branch of industry in this country. He had found *B. Pernyi* ♂♂ united, and had also found ♂ *Pernyi* in copulâ with ♀ *Cecropia*, *Polyphemus*, and *Yama-mai*. Eggs produced from the union of *Pernyi* and *Yama-mai*, had proved fertile; the cocoons and larvæ were more like those of the ♂ parent than of the ♀.

Professor Westwood read "Descriptions of new species of *Pselaphidæ*."

DESCRIPTIONS OF NEW GENERA AND SPECIES OF *HETEROMERA*.

BY F. BATES.

Family *TENEBRIONIDÆ*.SUB-FAMILY *TENEBRIONINÆ*.*EXERESTUS*, n. g.

Mentum concave on its outer face, transverse, truncated in front, the sides a little rounded anteriorly, thence slightly contracted to the base: *labium* prominent, transverse, rounded in front and notched in the middle: last joint of *labial palpi* briefly securiform: inner lobe of *maxillæ* not (or obsoletely) armed at the tip, densely clothed with long, setiform hairs: last joint of *labial palpi* broadly securiform: *mandibles* notched (at the outer side) at the end: *labrum* very prominent, vertical, transverse, the angles rounded, sinuous in front: *head* very large and very long (over 3 lines); widest—and much prolonged—behind the eyes, somewhat abruptly terminating in a short, thick neck: *epistoma* strongly declivous—or bent down in front, elongate-trapeziform; a broad, deep, semi-circular notch in the fore margin revealing the membrane attaching it to the labrum; faintly separated from the front by an arched impression, which is interrupted in the middle: *eyes* small, transverse, very narrow, scarcely notched in front, very distant ($1\frac{3}{4}$ lines) from the prothorax; a slight, angular depression at the posterior corner of each eye, and another, much larger, deeper, and oblong, in front; these depressions give slightly the appearance of a supra-orbital ridge interrupted in the middle: *antennæ* shorter by one-fourth than the head and prothorax; depressed; joint 3 nearly as long as 4 and 5 united; 4—8 sub-equal, sub-obconic; 9—10 shorter; the terminal joint is wanting in the only example I possess of this genus: *prothorax* scarcely wider than long, somewhat convex; narrowed in front and behind; slightly rounded at the sides—which are margined and crenulated; truncated in front—which is faintly margined at each side only; the fore angles rounded and depressed; base sub-sinuous, finely margined, the angles small but distinct and forming right angles: *scutellum* strongly transverse and convex; *elytra* oblong-ovate; scarcely broader than the prothorax at the base—which is margined and almost squarely truncated; convex; gradually declivous behind, the apex sub-acute: *epipleural fold* entire behind; mounting to the shoulders, where it forms a prominent angle; gradually narrowing from base to apex: *legs* rather long; femora a little swollen in the middle and compressed; the four front tibiæ slightly curved at the end; the hind a little sinuous; all provided with two short, acute spurs and tomentose within, at the extremity: the 1st joint of the posterior tarsi elongate: *intercoxal process* rather broad, rounded in front: *metasternum* somewhat short: *mesosternum* declivous, strongly concave in front: *prosternal process* not prominent, rounded behind: body wingless.

A genus remarkable by the form and size of its head—the cheeks* being enormously extended in length; the declivous epistoma (placing the labrum in a *vertical* position): the small, narrow eyes—so distant

* I use the word *cheeks* for the sides of the head *behind* the eyes: it is frequently, but most improperly, used for that projecting portion, in *front* of the eyes, which partly surrounds the base of the antennæ (=antennary orbits).—F. B.

ERRATA.

The following errata unfortunately occurred in Mr. Ward's paper in our last number :

In the description of *Pieris Mananhari*, instead of "this band is much more distinct in the ♂ than in the ♀," read "in the ♀ than in the ♂."

The description of the under-side of *Eronia Vohemara* and *Junonia Antera* refers to the ♂ and not to the ♀.

In *Danaïs Nossima*, read "Expanse, ♂, 3 inches," instead of ♀.

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4



3

from the prothorax. The metasternum—so much shorter than usually obtains in this sub-family, would seem to connect it with the *Cœlometopinæ* (through *Polypleurus*) ; but it unmistakably belongs to the present sub-family, the remarkable notch in the anterior margin of the epistoma (Pl. II, fig. 1a) clearly connecting it with *Zophobas*. Perhaps the most singular feature is the absence of the long hook, or claw, to the inner lobe of the maxillæ.

E. JANSONII, *n. sp.* (Pl. II, figs. 1 and 1a).

Length 12 lines.—Elongate ; entirely of a dull black, with a slightly bluish bloom : head and prothorax impunctate ; on the latter a transverse, sinuous impression at the middle, near the base, and one or two others smaller, near the hind angles : elytra, each with (besides a short sutural sulcus) nine well-marked longitudinal sulci ; these are regularly and closely impressed with rather large, rounded punctures, which nick their sides ; the intervals—save the first—are narrow, convex, and impunctate ; the 1st is joined to the 7th near the apex, the 2nd to the 6th, and the 3rd to the 5th, enclosing the 4th ; the 8th is shortened behind, and—as well as the 5th and 7th—joined on to the 6th a little before attaining the shoulder : under-side, legs, &c., glossy black ; the abdomen very faintly longitudinally wrinkled, and sparingly and minutely punctulate.

Hab. Nicaragua, Chontales.

Discovered by Mr. E. Janson, Jun., to whom I dedicate it.

HIPALMUS, *n. g.*

From *Zophobas* the present genus differs in having the last joint of the *labial palpi* briefly securiform ; the *eyes* smaller and much narrower ; the *antennæ* shorter and stouter, with joints 9—10 transverse, 11 obliquely truncated, the outer apical angle produced ; the *prothorax* relatively shorter and broader, the lateral margins crenulated : the *elytra* relatively shorter, ovoid, much more convex, widest behind the middle, somewhat abruptly declivous behind, and more pointed at the apex : the *legs* relatively stouter, the *tibiæ* scarcely perceptibly curved : the *metasternum* much shorter, being no longer than the 1st abdominal joint in its shortest part : the *intercoxal process* relatively broader and more rounded anteriorly : the *prosternal process* much more strongly produced and pointed behind ; and the *mesosternum* sub-horizontal. The body is apparently wingless.

The majority of the above characters were pointed out by Lacordaire (Genera, v, p. 378, note) when stating the advisability of erecting it into a distinct genus. The more convex form and the elytra gradually widened from the base to beyond the middle, and abruptly declivous behind, give quite a different facies to that of *Zophobas*, to which, however, the present insect must be closely related, notwithstanding its short metasternum. There is a peculiarity in the *mentum* (shared by the present genus with *Zophobas*), which has its outer

face more or less strongly carved out, or excavated, anteriorly and at the sides, leaving at the middle a more or less cone shaped, outwardly projecting piece (with usually its apex *broadly* rounded), having somewhat the appearance of a secondary or double chin.

The type of the genus is the *Tenebrio costatus* of Guérin, which I briefly re-characterize (Pl. II, fig. 2).

HIPALMUS COSTATUS (*Tenebrio*), Guérin, Voy. de l. Coq., Entom., p. 97, Ins. pl. 4, fig. 5 (*Zophobas sulcipennis*), Dej. cat., p. 226.

Length $8\frac{1}{2}$ to 9 lines.—Entirely of a dull black with—on the elytra, a slightly bluish bloom: head very coarsely rugose-punctate: thorax with a few large, scattered punctures, mostly distributed on the disc; a small fovea at each side, somewhat anteriorly; another, much stronger and transverse, at the middle, near the base, and one, more rounded, at each side of the latter; these basal foveæ or depressions form between them two short lobes which are squarely truncated behind and *within the margin*: elytra each with eight well-marked costæ, the alternate ones being more elevated; the 2nd more especially so at the base, where it is united with the 4th, and also with a short, oblique, sutural one; the intervals between these costæ are concave, and each has a regular row of somewhat transverse punctures; both costæ and intervals are sparingly and minutely punctulate: under-side, legs, antennæ, &c., concolorous.

Hab. Peru.

SUB-FAMILY CNODALINÆ.

NAUTES* *ÆNEUS*, *n. sp.*

Length $3\frac{1}{2}$ lines.—Entirely of a rich, metallic olive-green; moderately convex; head and prothorax sparingly and finely punctured; the former without any impressed lines or foveæ on the crown between the eyes; the latter with two shallow basal foveæ, and several others, more obscure, at the sides: scutellum smooth; elytra finely striated, the striæ faintly and remotely punctured; the 1st and 9th (which is altogether marginal, and almost lost in the reflexed edges of the elytra) are joined together near the apex; the 5th and 6th are united at about two-thirds their length, and from the point of union is sent forth a single stria which is united to the 2nd, 3rd, and 7th further on, or nearer to the apex; the 4th is a little shortened behind, and the 8th is strongly abbreviated at both ends; intervals flat and smooth: under-side, legs, and antennæ pitchy-black, the latter with a slightly reddish tinge: abdomen longitudinally wrinkled.

Hab. Nicaragua, Chontales.

Discovered by Mr. E. Janson, Jun.

Smaller than *N. fervidus* (Pascoe, l. c., p. 476), and without the two well-marked, oblique impressions between the eyes; the prothorax more abruptly narrowed anteriorly, the sides more strongly margined and thickened at the edge, the punctuation much finer; the colour quite different, and the whole insect relatively broader and less convex.

* (Dej.) Pascoe. Journal of Entomology, ii, p. 475.

NAUTES OVATUS, *n. sp.*

Length $4\frac{1}{2}$ lines.—Ovate, convex; shining; of a rich purplish-brown with slight green and purplish-coppery reflections; epistoma broadly emarginate anteriorly; faintly separated from the front, and—together with the latter—rather densely punctured: prothorax somewhat closely punctured, the punctures more scattered on the disc; lateral margins thickened; broadly lobed at the middle of the base, the angles moderately prominent: scutellum punctured at the sides: elytra deeply striated, the striæ faintly punctured, or nicked at the sides; intervals sub-convex, sparingly punctured: under-side shining reddish-brown, the legs a little darker: metasternum with a few punctures at the sides: abdomen strongly longitudinally wrinkled.

Hab. "Colombia."

The above description applies to a specimen (labelled "*Nautes ovatus*, Dej., nov. g., Colombia") formerly in the collection of Dejean; *Nautes* being one of the new genera proposed by him since the publication of his last catalogue; another example (both form part of the collect. Laferté) is a trifle more bulky— $4\frac{1}{2}$ lines; a little duller in colour, the green, &c., reflections being less apparent; the punctuation on the prothorax finer; and the legs and antennæ a shade redder.

NAUTES ELEGANS, *n. sp.*

Length $2\frac{1}{2}$ lines.—Elongate oval; but little convex; entirely of a glossy dark brown with a slight golden tinge; head rugosely punctured, epistoma broadly emarginate anteriorly, confounded with the front: prothorax rather closely—save on the disc—punctured; the sides moderately margined and but little thickened at the edges; the fore angles produced; the base moderately bisinuate, lobed in the middle, having the usual basal foveæ, and another, fainter and oblong, between them and exactly in the middle of the base: scutellum slightly punctured at the sides: elytra but little convex, more gradually attenuated behind than in the preceding species; deeply striated, the striæ finely and remotely punctured, or nicked at the sides; the intervals sub-convex at the sides and apex, flat on the middle, slightly and transversely rugulose: under-side, legs, &c., shining reddish-brown.

This species forms part of the coll. Laferté; it stands labelled "*Nautes elegans*, mihi, col. Dupont," but, unfortunately, no clue is given as to its habitat.

NAUTES EXIMIUS, *n. sp.*

Length $3\frac{1}{2}$ – $3\frac{3}{4}$ lines.—Oblong; convex; head and prothorax slightly rugged, of a coppery-brown variegated with patches of vivid green, somewhat iridescent; epistoma squarely truncated anteriorly, separated from the front by a broad, well-marked, lunate impression; head rather coarsely punctured, especially between the eyes: prothorax punctured, the punctures larger and more crowded at the sides;

strongly bisinuous at the base, the median lobe squarely truncated behind; fore angles much produced; broadly channelled at the sides, which are margined, the edges a little thickened, and crenulated anteriorly, one crenulation—just before the angle—being particularly well-marked, forming a positive triangular excision: scutellum golden-green: elytra convex; the humeral angle very prominent; each with nine (besides the usual short scutellar one) rows of close set, large, oblong punctures or foveæ, which are connected together, in line, by narrow lines or striæ; posteriorly and at the sides these punctures become more crowded and confused, running more or less into each other and forming veritable sulci, with narrow, convex spaces between them; the intervals down the middle nearly flat and—apparently—smooth: it is somewhat difficult to catch the exact colors of the elytra owing to a slight iridescence, but in a certain light the space, or interval, down each side the suture and the intervals 3, 4, 7 and 8 appear vivid green, whilst 2, 5, 6 and 9 appear coppery-brown, under-side and legs shining, reddish-brown tinged with golden-green; 3 first joints of the abdomen coarsely longitudinally wrinkled and punctured; femora and tibiæ closely punctured, the latter golden-brown; antennæ and tarsi reddish-brown.

Hab. Nicaragua. Chontales.

The present species exhibits a considerable departure from the type, but its differences are not such, I conceive, as to warrant its erection into a distinct genus. The main points of departure from the type are: the head shorter, the epistoma strongly and distinctly separated from the front; the last joint of the labial palpi* shorter, much more produced and rounded on the inner side, thicker (a transverse section showing almost a perfect oval); the strongly produced anterior angle of the prothorax, the lateral edge in part crenulated, the median basal lobe squarely truncated behind; and the totally different style of sculpturation on the elytra. Also one of the novelties discovered by Mr. E. Janson, Jun.

TARPELA, *n. g.*

Characters of *Nautes* (especially of the preceding species): differs in having the *mesosternum declivous* and *broadly excavated in front* (not horizontal, and sharply triangularly notched in front as in *Nautes*); the *prosternum bent down behind the anterior coxæ*, then expanded and terminating in a broad point; the form narrower, more elongate, more parallel and more depressed; the prothorax squarer, the anterior angles very strongly produced—extending nearly to the upper edge of the eyes; and the lateral margins strongly crenulated.

T. BROWNII, *n. sp.* (Pl. II, fig. 4.)

Length 3 lines.—Oblong; scarcely convex; brown with a slight golden tinge,

* Probably only a character of the ♂.—F. B

without any metallic lustre; head and prothorax punctured, the punctures larger and closer on the latter; epistoma separated from the front by a well-marked lunate impression: prothorax sub-quadrate, but little convex, a little wider than long, sides narrowed anteriorly, the fore angles very strongly produced and pointed, very slightly rounded at the sides—which are not margined, the edges neither reflexed nor thickened, but strongly crenulated; base strongly bisinuate, the angles obliquely—or outwardly—produced, overlapping the humeral angles of the elytra; two foveæ, one at each side the middle, near the base, connected by a rather broad, transverse, slightly outwardly curved impression: scutellum smooth: elytra but little wider than the prothorax at the base, but little convex, sub-parallel, or very gradually widened to three-fourths their length, thence narrowed to the apex; each with nine rows of well-marked, oblong punctures, the intervals—except at the apex, where they are a little transversely wrinkled, flat and smooth; under-side and legs reddish brown; sterna and abdomen strongly and closely punctured; tibiæ finely and densely punctured: antennæ blackish-brown.

Hab. Nicaragua (Chontales); discovered by Mr. E. Janson, Jun. I dedicate this species to Edwin Brown, Esq., of Burton-on-Trent.

TARPELA OBLONGOPUNCTATA, n. sp.

Length 3 lines.—Head and prothorax brown, slightly bronzed, closely and evenly punctured, the punctures well marked: prothorax a little convex, base moderately bisinuate and somewhat strongly margined, hind angles not quite so produced as in the preceding species: elytra shining green with purplish-coppery reflections, and with a brilliant, purplish-coppery stripe down by the suture; somewhat convex and a little more expanded at the sides than in *T. Brownii*; each with nine rows of oblong punctures, which become much stronger and less approximate at the sides; intervals finely punctured, nearly flat on the middle, transversely irregular, or reticulately wrinkled at the sides and apex; the 3rd and 7th intervals, for a short distance before their junction near the apex, are somewhat abruptly elevated, forming two short costæ, which converge to a point behind, at their junction: under-side reddish-brown, punctured, the abdomen being also finely longitudinally wrinkled; legs, palpi, &c., a little paler; tibiæ densely punctured; two last joints of the antennæ blackish-brown.

Hab. Mexico.

The present species forms part of the collection Laferté.

ELOMOSDA, n. g.

Mentum flat, subquadrate, transverse, angles rounded, very deeply and broadly emarginate anteriorly,* leaving the *labium* entirely exposed: the latter prominent, transversely cordiform: *labial palpi* moderately separated at base; last joint a little elongate, sub-cylindrical, the apex broadly truncated: inner lobe of *maxillæ* unarmed: last joint of *maxillary palpi* somewhat broadly securiform: *mandibles* broadly truncated at the extremity; *labrum* prominent, faintly sinuous in front,

* Or, perhaps, it would be better to say, the anterior half membranaceous.—F. B.

the angles broadly rounded, the membrane* attaching it to the epistoma very full and prominent: *head* rather short, sub-vertical, slightly narrowed behind the cheeks, forming a short, thick neck: *epistoma* short, broadly and squarely truncated in front, the sides sub-parallel, separated from the front and from the antennary orbits by a strongly marked semicircular impression: *eyes* somewhat prominent, transverse, notched in front; a deep sulcus immediately within, and extending backwards to beyond the posterior angle of, each eye, gives somewhat the appearance of a supra-orbital ridge. *Antennæ*—♂—elongate, slender; joint 3 a little longer than 4; 4—7 sub-equal, elongate-obconic and slightly nodose at the tips: 8—10 a little shorter, gradually widening from base to apex, and—together with 11—studded with sensitive pores; 11 nearly twice the length of 10, a little curved and thickest towards the apex (sub-fusiform) which is obtusely pointed: in the ♀ the antennæ are shorter by one-third, the last joint is sub-cylindrical and rounded at tip: *prothorax* sub-quadrate, a little narrowed anteriorly (especially in the ♂), sides inflexed, separated from the flanks by a very fine raised line; truncated in front, the fore angles rounded and bent down, very finely margined at each side (but not at the middle); base subsinuous, strongly margined and somewhat thickened; the hind angles small but prominent and acute: *scutellum* moderate, triangular, the sides curved: *elytra* elongate, convex, gradually declivous behind, truncate (not margined) at the base, which—including the shoulders—is about as wide again as the prothorax: shoulders prominent but rounded; sides sub-parallel to three-fourths their length thence obliquely narrowed to the apex, which is sub-acute: *epipleural fold* sinuous, broadest at the base, terminating a little beyond the last abdominal suture: *legs*—♂—long; femora strongly clavate and much attenuated at the base: fore tibiæ moderately curved, compressed; intermediate arched, and somewhat thickened at the end: hind nearly straight: two short, stout spurs may be seen to the anterior tibiæ only: in the ♀ the legs are shorter; the fore tibiæ scarcely, the intermediate but very moderately, curved: *tarsi* somewhat villose beneath, elongate, especially the intermediate and posterior; the 3 first joints of the anterior (and intermediate in a lesser degree) a little expanded, especially in the ♂; the penultimate joint of all small; the last (especially the intermediate and posterior) elongate: *intercoxal process* moderately broad and gradually arched to the apex: *metasternum* elongate; its episterna parallel and slightly concave; its epimera very distinct; *mesosternum* horizontal, broadly and deeply notched for the reception of the *prosternal process*, which is strongly produced and pointed behind.

A genus strongly recalling by its facies certain members of the sub-family *Helopinæ*; and which, but for its elongate metasternum, I should be inclined to place near the genus *Hegemona*. Its clavate thighs, and long, slender antennæ are quite exceptional in the present sub-

* Le Conte calls this membrane the *clypeus*; Pascoe considers it the *epistoma*; the epistoma of Lacordaire=the clypeus of Pascoe. This membrane in the majority of the *Heteromera* is not seen, it may be very apparent in one genus and totally invisible in another closely related to it; in the genus *Oplocephala*—and others—it is plainly visible in some species and not at all in others. Le Conte makes use of this character to detach from the *Ulominæ* certain forms which he places in his new "Tribe" the *Hypophlaeini*; in this tribe he also places his genus *Evoplus*; it seems to me perfectly impossible to dissociate this genus from *Oplocephala*, for not only are the majority of its characters the same, but in *habit* it is precisely similar (it is confounded with it by French Entomologists, under the name of *Oplocephala 4-cornis*, Chev.), and moreover, it has the intermediate coxal cavities open externally, plainly revealing the trochantin.—F. B.

family; and the deep furrow bordering, and extending posteriorly beyond, the eyes, within, recalls a similar feature in several genera of *Tenebrioninæ*. It must, I think, be placed near *Camaria*, one species of which, *C. spectabilis*, Pascoe, has the antennæ much longer and more slender than ordinary.

E. BELTII, n. sp. (Pl. II, fig. 3, ♂).

Length $9\frac{1}{2}$ to $10\frac{1}{4}$ lines.—Metallic bronzed: head and prothorax bronzed-green; the former sparingly and finely punctured, the latter very minutely punctulate: elytra bronzed-green, with purplish reflections down the intervals, and rich, golden-green down the striæ; oblong; very convex; sub-parallel to three-fourths their length, thence obliquely contracted to the apex: each with nine well-marked striæ, the striæ closely and finely punctate: intervals very convex, not, or obsoletely, punctured: the 8th (or outer) interval extending to the apex; the 1st and 2nd reaching, and running into, the 8th: the 3rd, 5th, and 7th connected posteriorly, enclosing the 4th and 6th; the 6th is interrupted at about half its length by the abrupt coalescence (at this point only) of the 5th and 7th: under-side and legs brilliant dark green with slight purplish and coppery reflections; tarsi black with a greenish tinge; palpi, &c., and the seven first joints of the antennæ pitchy-black.

Hab. Chontales, Nicaragua.

I dedicate this fine species to Mr. Belt, who discovered it.

6, Stockdale Terrace, Leicester, *February*, 1870.

TWO DAYS' COLLECTING AT RANWORTH.

BY CHARLES GOLDING BARRETT.

July 31st, 1869, is a memorable day to me, as the date of my first introduction to fens and fen collecting. On that day Mr. De Grey and I paid our first visit to Ranworth, and to his kind instructions I owe it that I had any success in collecting; for, as those who share my previous ignorance will *not* be aware, the ordinary conditions of successful collecting are so entirely absent in the fens, that, at first, one is almost tempted to stand still in despair, and wonder how it is possible to find anything in such a dreary expanse.

The perfectly level surface presents no shelter from the wind, which in so wet a place is almost constantly blowing; the stunted sallow bushes scattered here and there scarcely rise above the level of the reeds; and only in one or two spots where the alders and sallows have been allowed to grow so thickly together as to form a thin copse (locally called a carr), is there any real shelter;—and here many of the insects congregate. Most insects, however, peculiar to the fens seem to frequent the open fen and hide during the day among the long reeds and plants which cover the surface in rank luxuriance.

Considering, therefore, that over the greater portion of the fen there are no sheltered spots in which insects can congregate and be therefrom disturbed,—that any hurried or incautious chase after one, when trodden up, is extremely likely to result in a plunge to the waist in water having a bottom of unfathomable mud (a mud not likely to be disturbed by anyone troubled with sensitive olfactory nerves),—and that from the soaked and spongy nature of the soil one's boots are generally kept full of water, it will be readily seen that fen collecting possesses difficulties in some degree commensurate with the value of its results.

It would be pleasant, were I capable of doing it justice, to dilate upon the *flora* of the place, so totally different to anything to be found under ordinary conditions: *e.g.*, the exquisitely lovely grass of Parnassus (*Parnassia palustris*), and the scarce and handsome marsh-fennel (*Peucedanum palustre*), the food plant of *Papilio Machaon*; *Cladium mariscus* ten feet high or more in the drains; *Typha angustifolia* as plentiful as its congener; the delicate marsh-fern (*Lastræa thelypteris*), so abundant that in many places it is impossible to avoid constantly treading upon it (and that it is even *mowed* down for packing purposes); and the usually insignificant Adders' tongue (*Ophioglossum vulgatum*) growing a foot high among the long grass and *Carex*, &c.

But I have to detail our operations on July 31st. It was then rather late for some of the best insects, but by beating in a carr we obtained a few *Lithosia griseola* and *stramineola*, and one or two *muscerda* as well as *Scotosia rhamnata*; and the fortunate capture of the little *Bohemannia quadrimaculella* kept us working the alder bushes for some hours. It was, however, excessively scarce, and so lively as to be in no small degree trying to the patience, but we secured about a dozen. This was one of those days on which insects seem endowed with preternatural activity, while the eyes and hands that should secure them are unequal to the task.

As it got late in the afternoon a few more specimens of *Sericoris abscissana* turned up on the open fen with *Phoxopteryx siculana* and *Coleophora discordella*, and *Gelechia atrella* was common, and about as easy to catch as a flash of lightning.

Towards sunset, insects were stirring in greater plenty, and were much more steady in their movements.

Acidalia immutata and *Scoparia pallida* were common enough, and *Crambus uliginosellus* and *selasellus* not scarce, and with early dusk *Nonagria despecta* made its appearance in abundance, buzzing about the bushes in the style of a *Miana*, and accompanied by *Pionea stramentalis*, *Herminea cribralis*, and *Chilo phragmitellus*.

Later at night we devoted ourselves to working for *Lithosiæ* at the alder carr, *griseola* and *stramineola* being then common, but *muscerda* rather scarce. Stray specimens of *Celæna Haworthii* and *Hydrelia unca* also turned up.

On a second visit on August 14th, many of the same species were out; the *Lithosiæ* not quite over; of *muscerda*, even three specimens occurred to Mr. De Grey's superior luck (I did not see one); and *Eupithecia tenuiata* had become quite common among the willows, where also *Depressaria conterminella*, *Yeatiana*, &c., were not scarce.

The two species of *Hyponodes* were occasionally to be disturbed among the long grass, and usually had the wit to fly across the water to inaccessible places, and *Peronea Shepherdana* and *aspersana* turned out from among *Spiræa ulmaria*. *Elachista cerussella* and *paludum* also occurred rarely among the herbage, and I had the good fortune to turn out one specimen of *Gelechia muscosella*, the novelty discovered a few weeks before by Mr. De Grey, at Wicken fen.

A *stramineola* ♀, fished out of a drain on this occasion, obligingly laid a batch of eggs, which, under the fostering care of Mr. Hellins, will, I hope, help to solve the vexed question of the distinctness of this species from *griseola*, especially as Mr. De Grey had, I believe, the good fortune to secure eggs of both species (or varieties).

One curious and rather unexpected morsel of evidence has occurred to me. Among the specimens of *stramineola* taken, were several varieties having more or less of the ground colour of *griseola* in irregular patches, and forming apparently regular connecting links, but these specimens have all faded so much that already they hardly differ from normal *stramineola*, while the typical *griseola* by their side are just as when taken.

I omitted to mention, that, on our first trip, a rough piece of ground by the road side attracted our attention, and, alighting, we proceeded to investigate it. Among the short heath Mr. De Grey very soon secured *Sophronia parenthesella*, and we found *Pterophorus teucrii* common among *Teucrium scorodonia*.

On a second visit a few days after, I found this plume in great abundance, though worn, and secured a few specimens of *Ebulea verbascalis* and *Sophronia parenthesella*. A thunder storm was impending; and the plumes, apparently delighted with the prospect, were dancing over the *Teucrium* like *Tipulæ*.

DESCRIPTION OF AN UNDESCRIBED SPECIES OF DIURNAL
LEPIDOPTERA FROM TROPICAL AFRICA.

BY PROFESSOR J. O. WESTWOOD, M.A., F.L.S., &c.

JUNONIA WESTERMANNI, *sp. n.*

Mas.—*Alis* *suprà* *nigris*, *apicem* *versus* *magis* *fuscis*; *omnibus* *plagâ* *magnâ* *sub-ovatâ* *fulvâ* *pone* *medium*, *posticis* *maculâ* *oblongâ* *sub-costali* *læte* *cæruleâ*; *alis* *anticis* *infra* *pallide* *fulvis*, *marginè* *postico* (*ad* *angulum* *apicalem* *et* *posticum* *dilatato*) *fusco*, *litturis* *5* *undatis* *nigris* *intra* *cellulam* *discoidalem* *maculisque* *duabus* *sub-mediis* *punctoque* *sub-apicali* *nigris*: *alis* *posticis* *albido-griseis*, *marginè* *postico* *obscuriori*, *puncto* *ad* *basin* *cellulæ* *serieque* *punctorum* *5* *sub-marginalium* *nigris*, *strigis* *nonnullis* *fuscis* *per* *medium* *alæ* *irregulariter* *extensis*.

Expans. *alarum* *anticarum* *unc.* *2.* *Habitat* *in* *Guinea* (*D. Westermann*).

In *Mus.* *Hopeiano* *Oxonie*, *Dublinensi*, &c.

Specimens of this lovely insect were taken in Guinea by the late celebrated entomologist, Herr Westermann, of Copenhagen, by whom the species was communicated to the Rev. F. W. Hope, M. Boisduval, and other entomologists, and the specific name adopted above was proposed for it by the last named author; but no description has hitherto appeared of it. These were the only specimens hitherto known of the insect in British or Continental collections. I have, however, just received an interesting communication from Mr. W. F. Kirby, the indefatigable Keeper of the Royal Dublin Society's Natural History Museum, from which it appears not only that specimens of the male supposed to have been collected at Cape Coast are contained in that collection, but that he has also discovered in it a specimen which he considers to be the female. It is without a label, but pinned in the same way as the others, "from which it differs strikingly on the upper side. It is brown above, the base darker, the whole of the centre of the hind-wings filled with a broad orange band (much duller than in the male), which extends to the adjacent portion of the fore-wings, curving inwards across the cell, where it becomes much more obscure. The orange band of the hind-wings seems to have been edged with lilac-blue, and there are traces of detached bright blue scales in the cell of the fore-wings. There is a row of five black spots towards the edge of the orange on the hind-wings (visible on the under-side in the male also), and continued, in the female, on the fore-wings, although the only conspicuous spot is one near the hinder angle of the fore-wings. Beneath, the female chiefly differs in wanting nearly all the dark markings, and in the orange markings being more suffused, and not sharply defined as in the male."

CHARACTERS OF A NEW GENUS AND DESCRIPTIONS OF NEW SPECIES
OF *ALEOCHARIDÆ* FROM BRITAIN.

BY D. SHARP, M.B.

ACTOCHARIS (Janson *in litt.*), *gen. nov.*

Maxillæ malis elongatis, angustis, interiore spinulis validioribus instructâ, apice uncinatâ.

Palpi maxillares articulo tertio magno, sub-ovali, quarto subulato.

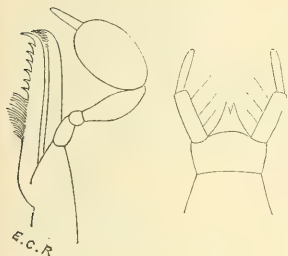
Ligula triangularis, apice bifidâ.

Palpi labiales bi-articulati, articulo secundo primo paulo brevior et angustior.

Tarsi breves, antici intermediique 4-, postici 5-articulati, omnes articulis primis æqualibus.

Oculi obsoleti.

Corpus elongatum, lineare, depressum. Caput elongatum, oculi minores, nullo modo prominuli, pigmento nullo. Maxillæ malis elongatis, sub-æqualibus; interiore intus basi ciliatâ, apicem versus spinulis fortioribus instructâ, apice uncinatâ; exterior apice pubescente. Palpi maxillares malâ interiore paulo longiores, articulo secundo tertio vix brevior sed multo angustior, hoc magno, sub-ovali, quarto subulato, præcedente brevior. Ligula lata, triangularis, apice bifidâ. Palpi labiales articulo primo sat elongato, secundo illo angustior, et paulo brevior. Antennæ sat validæ, apicem versus vix incrassatæ, articulis 3—10 sub-trans-



Maxilla and labium
of *Actocharis Readingii*.

versis, tertio cæteris minore. Thorax haud transversus, basin versus angustatus. Elytra thorace breviora; alæ nullæ. Abdomen basi quam apice angustius. Pedes validi, breviusculi. Tarsi breves, anteriores et intermedi 4-, posteriores 5-articulati: articulo basali sequente haud multo longior.

The tiny insect for which this genus is established is, as will be seen from the characters given above, a most anomalous little creature. Its appearance and characters leave no doubt that it must be placed among the true *Aleocharidæ*, though in the elongate lobes of the maxillæ it clearly approaches the *Myllænæ*, and by the great size of the third joint of the maxillary palpi, as well as by the two-jointed labial palpi, the *Gyrophænæ*. On the whole I think it is best placed near *Silusa*, which approaches *Actocharis* in more than one respect, as regards the structure of the trophi.

A. READINGII, *sp. n.*

Angusta, linearis; testacea, abdomine, apice excepto, fusco; omnium dense obso-

letissimeque punctata pubescensque; capite plano, thorace longiore, antice paulo angustato; thorace basin versus angustato, latitudine longiore, medio late longitudinaliter impresso; elytris thorace brevioribus.

Long. $\frac{3}{4}$ lin.

Mas abdomine segmento sexto elongato, late longitudinaliter impresso, apice semicirculariter emarginato.

This species was taken several years ago by Mr. Reading, and subsequently by Mr. Wollaston, at Plymouth: I am sorry that I am not able to give particulars as to its habits, but these are I believe very remarkable, and similar to those of *Æpys*.

OCALEA LATIPENNIS, sp. n.

Nigro-fusca, sub-nitida, antennis apicem versus fuscis, basi, palpis, pedibusque rufis, elytris fusco-brunneis, capite prothoraceque subtiliter minus crebre, elytris crebre subtiliter punctatis.

Long. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.

Allied to *Ocalea castanea*, Er., but rather larger, darker in colour, and with much broader elytra. The antennæ are slightly longer and more slender than in *O. castanea*, and not quite so much thickened towards the apex; they are reddish-yellow at the base, more or less infuscated towards the apex; the length of every joint is distinctly greater than the width. The mandibles and palpi are yellowish, the apical joint of the latter slightly infuscated. The head is black, narrower than the thorax, sparingly and finely punctured. The thorax is black, about as long as broad, the sides much rounded in front, then distinctly narrowed behind, the posterior angles obtuse, but more marked than in *O. castanea*; it has an impression at the base in front of the scutellum, from which proceeds an indistinct, fine longitudinal channel; the upper-surface is finely but not closely punctured. The elytra are of a brownish or pitchy-brown colour, nearly one-half broader than the thorax, finely and very closely punctured, and delicately and densely pubescent. The abdomen is sparingly and finely punctured, a little yellowish at the apex. The legs are yellow, long and slender.

Found in Scotland, only on the banks of the rivers, in company with *Homalota currax*, &c. Communicated to me some years ago by Mr. Hislop. I have found the species very rare. Banks of the Nith and Avon.

ALEOCHARA FUNGIVORA, sp. n.

Nigra, nitida, pedibus rufis, antennarum basi obscure rufo, elytris brunneis, thoraci longitudine æqualibus, crebre punctatis; abdomine apicem versus sub-angustato, supra basi haud crebre, apicem versus parce punctato.

Long. 2— $2\frac{1}{2}$ lin.

Allied to *A. mycetophaga*, Kr., especially by the structure of its antennæ, but not so brightly coloured, with the abdomen less narrowed towards the apex and more sparingly punctured. The antennæ have the two or three basal joints obscurely yellowish, the others pitchy-black; the fourth joint is about as long as broad, the fifth to the tenth transverse, each one a little broader than its predecessor, the eleventh rather stout, pointed, about as long as the two preceding. The head is small, black, shining, sparingly and finely punctured, and the palpi are yellowish. The thorax is a little narrower than the elytra, its breadth one and a half times its length; it is rounded at the sides and narrowed towards the front, tolerably distinctly but not closely punctured. The elytra are about as long as the thorax, of an obscure red or brownish colour, rather closely and distinctly punctured. The abdomen is black and shining, obscurely reddish at the extremity, rather narrowed towards the apex, segments 2—5 transversely impressed at the base, and in the impressions closely and distinctly punctured, otherwise sparingly punctured. The legs are reddish.

Three specimens found in fungus at Eccles.

OBS.—This species, as well as *A. mycetophaga*, is distinguished from *brunneipennis*, Kr., and *mærens*, Gyll., by its shorter and more clavate antennæ.

OXYPODA LONGIPES, Muls., Op. 12, p. 103.

This species closely resembles *O. vittata*, from which, however, it differs very decidedly in the much longer intermediate joints of its posterior tarsi, and also in the larger terminal joint of its antennæ. The *O. metatarsalis* of Thomson (Sk. Col., ix, p. 246) must be very closely allied to this species, if not identical with it.

I have seen but a single specimen, which I captured at Aberlady, near Edinburgh.

PLACUSA DENTICULATA, *sp. n.*

Sub-depressa, nigra, antennarum basi pedibusque testaceis, femoribus posticis infuscatis, elytris fusco-testaceis: thorace coleopteris angustiore, transversim convexo, basi bi-sinuato, angulis posticis fere rectis; abdomine confertissime subtilissimeque punctulato.

Long. $1\frac{1}{3}$ — $1\frac{1}{2}$ lin.

Mas abdomine segmento septimo suprâ ante apicem tuberculis duobus, apice utrinque spinâ laterali introrsum curvatâ, dentibusque inter spinas laterales tribus linearibus, externis bifidis, insignis.

Antennæ yellowish at the base, pitchy towards the apex, third joint thinner and rather shorter than the second, joints five to ten

transverse. Head not much more than half as broad as the thorax, rather closely and finely punctured. Thorax transversely convex, considerably narrower in front than at the base, not quite twice as broad as long, the base on each side sinuate, so that the posterior angles are nearly right angles; closely and finely punctured, a little shining: elytra yellowish, closely punctured, the punctuation slightly coarser than that of the thorax; abdomen narrowed towards the apex, all its segments very closely and finely punctured. Legs yellowish, the posterior thighs a little darker.

This very large *Placusa* is less depressed than most of the other species, and is very remarkable by its male characters. It appears to be generally distributed in England and Scotland, but very rare. I have found it at the overflowing sap of birch trees, at Hampstead, and Rannoch, and in Strathglass.

OLIGOTA RUFICORNIS, *sp. n.*

Nigra, antennis pedibusque rufo-testaceis, ano ferrugineo; antennarum articulis ultimis tribus abrupte crassioribus; prothorace fortiter transverso, elytris hoc sesqui longioribus.

Long. $\frac{5}{8}$ lin.

Closely allied by the structure of the antennæ, and the colour of the legs and antennæ, to *O. pusillima*; but larger, especially broader, with the thorax more transverse, the elytra longer and broader, one and a half times the length of the thorax, and the abdomen a little narrowed towards the apex. Equally closely allied to *O. atomaria*, but a little larger, and distinguished therefrom by the bright colour of the antennæ and legs, as well as by the broader club of the former. Very common in the neighbourhood of London, among the refuse of hay-ricks.

Eccles, Thornhill, Dumfries.

March, 1870.

Additions, &c., to the list of British Coleoptera.

Meligethes brunnicornis, Sturm; Erichs., Ins. Deutschl., iii, p. 184. Determined by M. Ch. Brisout de Barneville as British, on the authority of specimens sent by Mr. Crotch and myself. The species is apparently widely distributed and not uncommon, and may be readily distinguished from *M. difficilis* by the closer punctuation of its elytra and its lighter-coloured antennæ and legs.

M. ochropus, Sturm, Er., must, I think, be erased from our lists. It was introduced by my friend Mr. T. J. Bold (Ent. Mon. Mag., iii, p. 47) upon a specimen of *M. brunnicornis*, as I have satisfied myself by examination; and the insects which I had myself attributed to it with doubt are also to be referred to that species. Mr. Crotch's *ochropus*, named *morosus* by M. Brisout, is in my opinion also *brunnicornis*: it certainly does not agree with the description of *morosus*.

M. viduatus, St.; Er., l.c., p. 185. Also determined as British by M. Brisout from specimens sent by Mr. Crotch and myself. It may be known from *M. pedicularius* by its lighter antennæ, the more rounded sides of its thorax (which is scarcely so closely punctured), its more abruptly broadened hinder tibiæ, and its rather broader anterior tibiæ, the apical teeth of which are sharper and longer.

M. pedicularius, (Gyll. ?) Er., l.c., p. 186. In the collections of Messrs. Crotch and Bold and Dr. Power. Determined by M. Brisout. The anterior tibiæ are very slightly widened, with the entire outer margin toothed, the denticulations being stronger towards the apex, the last but one most prominent.

M. bidens, Brisout, Gren. Cat. et Mat., p. 52. The *M. pedicularius* of Wat. Cat. must be referred to this species. It differs from the *pedicularius* of Erichson in being rather smaller and narrower, less convex, duller and more finely and closely punctured (the punctuation at the base of the elytra being very delicately transversely rugulose), and in having its anterior tibiæ much more widened towards the apex, which is armed with (usually) only two well defined teeth. This species is common at Mickleham, on *Teucrium scorodonia*.

M. ovatus, St.; Er., l.c., p. 198. Determined as British by M. Brisout from specimens sent by Mr. Crotch and myself. It is very like *M. viduatus* (though associated with *M. flavipes*), but of a shorter ovate form, with the thorax more abruptly narrowed in the apical third, and the tibiæ broader,—the armature of the anterior pair being less defined.

M. bidentatus, Brisout, l.c., p. 61. Determined by M. Brisout from two specimens in Mr. Crotch's collection. The species is allied to *M. erythropus*, but is rather wider and more convex, with closer punctuation, wider tibiæ, and a bidentate projecting transverse keel at the extremity of the last abdominal segment in the ♂.

M. ebeninus, Crotch Cat.=*lugubris*, Sturm.

M. obscurus, Crotch Cat., is now referred by M. Brisout to *M. palmatus*, Er. The insect is not uncommon at Mickleham, and is, I think, the *distinctus* of Wat. Cat. It does not seem to me to agree precisely with the descriptions of any of those species.

M. marrubii, Bris., Crotch Cat., still unique (I believe) as British in Mr. Crotch's collection, is allied to *M. serripes*, but is larger, with stronger punctuation, a longer thorax, and the armature of the anterior tibiæ stronger and less regular.

I intend to communicate a further series of types to M. Brisout, and will publish the result of his investigation.

Lathridius constrictus, Gyll., Ins. Suec., iv, p. 138. I have a single British specimen of this curious insect. It is allied to *carinatus*, but is rather smaller, narrower, and of uniformly lighter colour, with the thorax especially longer and narrower, and divided as it were into two lobes, of which the anterior is much the larger, and very rounded at the sides, with no trace of any angle in front. The two-jointed club to the antennæ, on which Thomson founded his genus *Coninomus* (cf. Kraatz, Berl. Ent. Zeit., xiii, p. 129), readily separates these two species from their allies. *L. constrictus* is sunk in De Marseul's Cat. (L'Abeille) as a syn. of *limbatus*, Först. (the latter name again appearing by itself at the end of the genus!); but, according to Kraatz, l.c., it is *carinatus*, Gyll., that is identical with Förster's species. Mannerheim attributes *L. constrictus* to Britain, evidently through his

erroneous attribution of Marsham's *ruficollis* to it as a synonym. *L. rugicollis*, Ol., *hirtus*, Schüpp., and *rugosus*, Hbst., are also erroneously attributed to Britain by Mannerheim, apparently through Stephensian blunders (though *rugosus* has subsequently been found in this country). The same observation applies to *Corticaria longicornis*, Hbst. (not in Wat. Cat. syn.), *linearis*, Payk., and *similata*, Schüpp.—E. C. RYE, 10, Lower Park Fields, Putney, S.W., April, 1870.

Note on the Heteromorous genus Platesthes, G. R. Waterh. (*Ann. & Mag. Nat. Hist.*, 1845, vol. xvi, p. 317).—M. Lacordaire, in his "Genera des Coléoptères," Tom. v, p. 215, says that the insect which Mr. Waterhouse describes (*silphoides*) is the same as that described by M. Guérin Ménévillè under the name *Praocis depressa* in the *Revue Zool.*, 1841, p. 215. This is, however, a mistake; I have both insects before me, and they evidently belong to quite distinct species, although to the same genus. The description of *Praocis depressa* will apply to *Platesthes silphoides* in every point, except that in *depressa* the elytra are said to be a little longer than broad, whilst in *P. silphoides* they are decidedly longer. The thorax in *silphoides* is very nearly as broad as (sometimes broader than) the elytra, the disc being very thickly and strongly impressed with almost confluent punctures; but in *depressa* the thorax is decidedly narrower than the elytra, the disc being sparingly and not deeply punctured. The elytra in the specimens of *depressa* in the British Museum collection are inclined to fuscous.

The dimensions of the two species are as follows:—*P. silphoides*, long. $5\frac{1}{2}$ lin., lat. $2\frac{3}{4}$ lin.; *P. depressa*, long. $5\frac{1}{4}$ lin., lat. 3 lin. Both insects are from S. Patagonia.—CHAS. O. WATERHOUSE, British Museum, March 21st, 1870.

Note on Cleonus sulcirostris.—I took a specimen of this beetle to-day, upon a dwarf-willow on the sand-hills here, and note the circumstance, as the insect lives in thistles, so that willow would seem an unnatural habitat for it.—E. KOPER-CURZON, Shortlands, Bridgend, S. Wales; 9th April, 1870.

Early occurrence of Lycaena Argiolus.—To-day (exceptionally warm and sunny) I took a fine ♀ of this species. We consider here that last year the season was fully a month in advance, as compared with this; yet the earliest date upon which I then saw *Argiolus* was April 24th.—ALEXANDER NASH, Hardwicke, Gloucester, 4th April, 1870.

Note on Saturnia carpini.—One ♀ of this insect appeared on March 31st, and one ♂ this day (April 5th). Both had been two years in pupa.—Id.

On the egg-state of Cirrædia xerampelina.—At p. 135, vol. iv of Ent. Mon. Mag., I have given an account of all I ever had to do with this species, in the way of investigating its earlier stages; but, although I cannot say much from my own knowledge, I possess a good deal of information about it, given me by the late Mr. Edmunds, of Worcester. He claimed to speak from much experience in rearing it, and gave this as the result of his investigations—that he found if the eggs were kept at no higher temperature than that prevailing out-doors, the larvæ would

not hatch till spring; and he considered the proper food to be the flower buds of ash, which we all know unfold some considerable time before the leaf buds. With this information before me, I had no hesitation in placing *xerampelina* in my list at p. 222; but it certainly seems that the eggs require to be kept in the cold, for that a very little extra warmth will cause the larva to be developed during the winter.—J. HELLINS, Exeter, April 5th, 1870.

Depressaria pallorella and *Gracilaria populetorum* at Witherslack.—Last September, I met with both these rare species at the above locality; and, as *D. pallorella* is an Isle of Wight species, and *G. populetorum* seems to occur chiefly in Ireland, I thought it might be interesting to record a fresh locality. My friend Mr. Bond has seen both specimens, and to him I am indebted for their names.—J. B. HODGKINSON, 15, Spring Bank, Preston, April 10th, 1870.

Note on Depressaria Weirella.—I see by the "Annual" the larva of this species cannot be separated from that of *applana*; it seems curious, but I do not breed one *applana* for a dozen of *Weirella*; perhaps no one thinks it worth while to take the green larvæ home, being afraid of being troubled with a lot of such a common species as *applana*; it was so with me, as I had an idea that *Weirella* larva was dark like that of *pimpinella*, until I saw in Stainton's "Manual" that the larva was green: now I can get plenty of *Weirella*, but they are very local.—ID.

Note on the luminosity of Fulgora.—The luminosity of the tribe *Fulgorites* having at various times been the subject of discussion among entomologists, I think it would be as well to preserve all reference to the subject in entomological publications, and accordingly reproduce the following notice from the History of Chili, by the Abbé Don F. Ignatius Molina, vol. i (1809), page 173:—"The glow-worms that I have seen were in general similar to those of Italy: but one night, as I was passing a little wood, I observed three insects, as large as the Death's-head-sphinx (*Sphinx Atropos*), which gave a very bright light. My attempts to take them, however, were fruitless, and I was never afterwards able to discover any of them, but I am of opinion that they were a species of lantern-fly." Could these insects have been *Fulgora laternaria*? their size would lead one to think this possible.—FREDK. SMITH, British Museum; 31st March, 1870.

ENTOMOLOGICAL SOCIETY OF LONDON, 21st March, 1870. H. W. BATES, Esq., F.Z.S., Vice-President, in the Chair.

Mr. Vaughan exhibited examples of *Dianthæcia conspersa* found by Mr. Henry Moore in Devonshire. These were remarkable as being varieties which, in some respects, approached *D. Barrettii*, but perfectly distinct therefrom. The Lepidopterists present had no difficulty in separating the two forms, although mixed in Mr. Vaughan's box.

Mr. Bond exhibited *Psyche betulina*, Zeller (= *anicanella*, Br.), found by Mr. Mitford, at Hampstead.

Mr. Smith exhibited an extraordinary larva from Monte Video, completely covered with clavate hairs, resembling those of *Acronycta alni*, but in extreme abundance.

Mr. Stainton exhibited *Cosmopteryx Lienigiella*, bred from English larvæ.

With reference to a query as to whether *Argynnis Niobe* and *Adippe* might not be one species, with dimorphic larva, Mr. Stainton mentioned the dimorphic form of that of *Acherontia Atropos*, though not as tending to prove the identity of the two species of *Argynnis*. Mr. Butler was still inclined to believe in the possible identity of the two species, though confessedly he knew nothing of the larvæ. He had seen the two forms dallying one with the other in the Alps.

Mr. Kirby communicated "Notes on Butterflies described by Linnæus."

4th April, 1870.—A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

H. W. Freeland, Esq., of the Athenæum Club, was elected a Member.

Mr. A. P. Falconer sent for exhibition a mole-cricket, found in a boat between Philæ and Alexandria. This was identified as most probably *Grylotalpa Cophta* of De Haan, according to Scudder.

Mr. Jenner Weir (for Mr. Vogan, present as a visitor) called attention to the enormous harm done in granaries by weevils. Out of 74 tons of wheat warehoused by Mr. Vogan, 10 cwt. of weevils had been sifted at one time; in 1868, 145 tons of maize were stored, and in August, 1869, 6 cwt. of weevils were separated therefrom, and in December, 1869, 29 cwt. more. In both instances the depredator was *Sitophilus oryza*.

Mr. Vogan asked for information respecting the earlier stages of the insect, and if it were probable that it would attack standing or newly-ripe corn. It was the general opinion of the meeting that it only infested dry cereals, in which it continued to breed 'in and in.' Mr. McLachlan referred to the fact of ship-biscuit being extensively attacked by *Sitophilus*; and in this case the only remedy consisted in re-baking. It was urged that, in the case of corn, this process would utterly destroy its value.

Mr. Vaughan exhibited a box of bred examples of *Dianthæcia carpophaga* from Croydon, the specimens shewing very considerable variation in colour.

Mr. Müller remarked that he had received a letter from Mr. Bassett, of Waterbury, U. S. A., confirming his observations as to the odour emitted by *Cynipidæ*.

Mr. Smith exhibited *Masoris vespoides* of Cresson, and *Pterochilus 5-fasciatus* of Say, both from the Rocky Mountains.

Mr. Weir exhibited a collection of *Argynnis Niobe* and *Adippe*, typical forms and varieties, with a view of proving the perfect specific right of the two species, as opposed to the views held by Mr. Butler.

Mr. Dunning read an extract from the Journal of the Society of Arts, respecting the spectrum produced by the fire-fly of New Hampshire. This was perfectly continuous, without traces of lighter or darker lines, extending from a little above Fraunhöfer's line C in the scarlet to about F in the blue, gradually fading at the extremities.

Mr. Crotch communicated notes on British species of *Dasytidæ*, and exhibited British examples of *D. plumbeus* (Müller), *D. æratus* (Stephens), and *Dolichosoma protensa* (Gené).

